Museum Library
E
51
AM3

MAY 4 1942

American Antiquity

A Quarterly Review of American Archaeology

Contents

The Direct Historical Approach to Archaeology. JULIAN H. STEWARD 337

Adena Pottery. JAMES B. GRIFFIN 344

Some Ancient Indian Village Sites Adjacent to Manchester, New Hampshire. HARLAN A. MARSHALL 359

The Inscription on Stela 38, Piedras Negras, El Petén, Guatemala. E. WYLLYS ANDREWS. 364

Geographical Differentiation of New Jersey Archaeological Material Inferred from Private Collections. NATHANIEL KNOWLES 369

A Delimitation of the Area and Some of the Archaeology of the Sula-Jicaque Indians of Honduras. DORIS STONE 376

A Southern Maya-Peten Pottery Correlation. JOHN M. LONGYEAR, III 389

FACTS AND COMMENTS . . . . . *See Cover III*

NOTES AND NEWS 410

BOOK REVIEWS . . . . . *See Cover III*

SOME RECENT PUBLICATIONS 423

INDEX TO VOLUME VII 429

AMERICAN ANTIQUITY IS INDEXED IN THE INTERNATIONAL INDEX

Published by the

Society for American Archaeology

Vol. VII *April, 1942* No. 4

SOCIETY FOR AMERICAN ARCHAEOLOGY

OFFICERS

President: GLENN A. BLACK, Indiana Historical Society, Indianapolis, Indiana.

Vice-President: EMIL W. HAURY, University of Arizona, Tucson, Arizona.

Secretary-Treasurer: THORNE DEUEL, Illinois State Museum, Springfield, Illinois.

Editor: DOUGLAS S. BYERS, Phillips Academy, Andover, Massachusetts.

Associate Editor: GEORGE C. VAILLANT, American Museum of Natural History, New York City.

Assistant Editors:

HENRY B. COLLINS, JR., Arctic Geographical Area.
E. W. GIFFORD, Pacific Coast Geographical Area.
ERIK K. REED, Southwestern Geographical Area.
WALDO R. WEDEL, Plains Geographical Area.
JAMES B. GRIFFIN, Northern Mississippi Geographical Area.
W. A. RITCHIE, Northeastern Geographical Area.
WM. S. WEBB, Southeastern Geographical Area.
J. ALDEN MASON, Middle American Geographical Area.
WENDELL C. BENNETT, South American Geographical Area.
F. H. H. ROBERTS, JR., Early Man in America.
FREDERICK JOHNSON, The Notebook.

Members of Council: The President, Vice-President, Secretary-Treasurer, Editor, and HAROLD S. COLTON, JAMES FORD, JAMES B. GRIFFIN, A. T. HILL, CHARLES R. KEYES, FREDERICA DE LAGUNA, M. R. HARRINGTON, E. B. SAYLES.

AMERICAN ANTIQUITY is published at 450–454 Ahnaip Street, Menasha, Wisconsin, quarterly in the months of January, April, July and October by the Society for American Archaeology. Subscription only by membership in the Society for American Archaeology (annual dues $3.00); includes the quarterly issues of AMERICAN ANTIQUITY and other releases as issued.

Entered as second-class matter July 22, 1935, at the post office at Menasha, Wisconsin, under the Act of March 3, 1879.

Contributions and publications for review should be sent to the Editor, Douglas S. Byers.

Subscriptions and orders for back numbers should be addressed to the Secretary-Treasurer, Thorne Deuel.

AMERICAN ANTIQUITY

VOL. VII APRIL, 1942 No. 4

THE DIRECT HISTORICAL APPROACH TO ARCHAEOLOGY

JULIAN H. STEWARD

IN RECENT years considerable attention has been given to theoretical statements and to concrete applications of what is called the "taxonomic method" in archaeology. Although this method is not necessarily in conflict with the direct historical approach to archaeology, a growing preoccupation with the former has definitely been at the expense of the latter. The direct historical approach, although employed more or less for many years, has not received formulation comparable to that of the taxonomic method, nor have its potentialities for planned research programs and its possible integration with recent types of historical ethnographic research received full recognition. Even, therefore, if it is unnecessary to argue its value, it seems timely to attempt a statement that may help clarify its procedures and research possibilities.

Methodologically, the direct historical approach involves the elementary logic of working from the known to the unknown. First, sites of the historic period are located. These are preferably, but not necessarily, those of identifiable tribes. Second, the cultural complexes of the sites are determined. Third, sequences are carried backward in time to protohistoric and prehistoric periods and cultures. This approach has the crucially important advantage of providing a fixed datum point to which sequences may be tied. But, far more important than this, it provides a point of contact and a series of specific problems which will coordinate archaeology and ethnology in relation to the basic problems of cultural studies.

The direct historical approach to archaeology was first deliberately used in the Southwest about 1915 by Nelson, Kidder, Spier, and Kroeber[1] and in New York State by Parker and Harrington about the same time.[2] In areas like the Southwest and Middle America, where many of the more conspicuous sites were only recently abandoned and where a connection between historic and prehistoric cultures was obvious, it was almost an inevitable approach. In all these areas, it was possible

[1] Nelson, 1916; Kidder, 1916. See also, Kidder, 1924, pp. 84–95; Spier, 1917; Kroeber, 1916.

[2] Parker, 1916; Also, Parker and Harrington, 1922.

to start with historic sites and, through stratigraphy, or seriation,[3] or both, to carry sequences backward beyond the point where the trails of the known, historic peoples faded out.

Despite this fruitful beginning, the full value of the direct historical approach seems not to have been recognized until much later. It is, in fact, a striking commentary on the divergent interests of archaeology and ethnology that in the Southwest the gap represented by the four hundred years of the historic period remained largely unfilled, while archaeology devoted itself mainly to prehistoric periods, and ethnology, to the ceremonialism and social organization of the modern Pueblo. And yet it was during this four hundred years that the Pueblo had contacts with one another, with the nomadic and seminomadic tribes, and with the Spaniards, that account for much of their present culture. There are only a few happy exceptions to the general indifference toward this period.[4] Similarly, interest in New York seems recently to have drifted away from problems of history to those of taxonomy.[5]

In most areas, use of the direct historical approach was delayed because historic sites were difficult to find or because other practical considerations interfered or simply because attention had been directed away from problems involving history or ethnology. For the Southeast, however, Swanton had assembled documentary evidence on the location of many sites of historic tribes.[6] Following his leads, Collins identified Choctaw pottery in 1925[7] and other historic wares were subsequently determined by several workers, especially Ford, Willey, and Walker. Ford has now succeeded in carrying a sequence for the lower Mississippi Valley back from the historic tribes through several prehistoric periods.[8] Meanwhile, sequences have also been established through use of the direct historical approach by Strong and Wedel in the Plains,[9] by

[3] This method was employed by Kidder in the Rio Grande valley (1915), and was stated more explicitly by Spier (1917).

[4] For example, A. V. Kidder's long and detailed studies of the historic Pueblo of Pecos, now published in full; F. W. Hodge's partially published studies of Hawikuh, an old Zuñi site, and J. O. Brew's recent excavations of Awatobi, an old Hopi village. E. C. Parsons has called attention to some of the types of study that will help relate archaeological and ethnological data in the Southwest (1939, Vol. 2, p. 1212 and 1940).

[5] W. N. Fenton (1941) showed the possibilities for use of the direct historic approach to archaeology in the Iroquois area and assembled abundant materials (1940) that could be used for this approach.

[6] Contained in many of Swanton's works. For his complete bibliography, see Swanton, 1940, pp. 593–600.

[7] Collins, 1927.

[8] See the summary in Ford and Willey, 1940.

[9] The latest summaries are Strong, 1940, and Wedel, 1940.

Collins in the Arctic,[10] by Parker and Ritchie in New York,[11] and elsewhere. In short, history is being rapidly blocked out and it is now becoming possible to describe archaeological materials in terms of time and space, the first elementary step toward understanding culture change.

The northern Mississippi Valley has yielded less readily to the direct historical approach. But it is hoped that the ethnographic survey of historical documents being made by Kinietz and Tucker will provide information on historic sites which will facilitate use of this approach. Meanwhile, the archaeological data of this, and, to some extent, other areas, are being arranged according to the taxonomic scheme. Basing classification solely on the association of cultural elements, the result is a set of timeless and spaceless categories. Whatever use may be made of these materials, it is to be hoped that the effort to pigeonhole cultural materials by any non-historical scheme will not direct attention too far away from historical problems, which are surely the most important consideration of archaeology. Furthermore, where history has already been blocked out, it is difficult to see what is gained by scrapping a scheme with historical terms and categories in favor of a non-historical one.

The direct historical approach is not only crucially important in ascertaining cultural sequences, but, integrated with recent endeavors in ethnology, it has a tremendous potential value to the more basic problems of anthropology. Too often, these problems have been obscured by immediate tasks; techniques and procedures have loomed as ultimate goals. Ethnology tends to ignore the results of archaeology, while archaeology, concentrating on its techniques for excavation and its methods for description and classification of the physical properties of artifacts, comes to consider itself a "natural," a "biological," or an "earth science" rather than a cultural science. It is too often forgotten that problems of cultural origins and cultural change require more than ceramic sequences or element lists.

If anything characterizes historical anthropology today, it is a recognition that valid theories which generalize data of cultural change, process, or dynamics must be based on gradually accumulating information about the specific circumstances which surround particular events. To the extent, therefore, that archaeology can deal with specific problems of specific peoples, tracing cultural changes, migrations, and other events back into the protohistoric and prehistoric periods while

[10] Collins, 1940, and earlier works.

[11] Parker, 1916. Ritchie, 1932; this preceded the interest in taxonomy.

ethnology traces them forward to the present day, it will contribute to the general problem of understanding cultural change. Its data can be handled directly for theoretical purposes; there is no need for taxonomy.

A few illustrations will suffice to demonstrate the value of the direct historical approach to these basic problems. Using it in the Plains, Strong put the cultures of the area in a new light. Tracing changes in the culture of known, historic tribes back through the protohistoric into the prehistoric period, he showed that the Plains had not been a basically bison-hunting area with a few anomalous, horticultural tribes, as had been generally assumed, but that it had formerly been in large part horticultural. A pronounced shift to hunting had followed the introduction of the horse. This new picture of the Plains required drastic revision of ecological and other theories previously held concerning it. In Alaska, Collins' direct historical approach to Eskimo archaeology revealed a long, local development of Eskimo culture which required new interpretations of Eskimo cultural origins and migrations. In the Southwest, the light thrown on Pueblo cultural origins by this approach is too well known to need comment.

On many other similar problems, work has only started. The Navajo and Apache, for example, are obviously Canadian in language though not in culture. Speculation about their cultural origins, their migrations, and their role, if any, in the retraction of the Pueblo area after about 1000 or 1100 A.D. has been almost futile. It is a job for the direct historical approach to Navajo archaeology, which has just begun. Similarly, the question of the relationship of the Iroquois to southeastern ethnic and archaeological groups and to Ohio archaeological complexes will be definitively solved only when archaeology has succeeded in tracing the different Iroquoian peoples deeper into the past. The distribution of Siouan peoples in the Plains and in the east also indicates the need of tracing both groups back to the area where they formed a single group and even suggests where ancient Siouan remains are likely to be found.

There are also problems connected with the introduction of new European culture elements during the protohistoric or early historic period that archaeology can help solve. We know much about the effect of the horse. But what about the gun, the steel trap, new trade relations, tribal dislocations and other factors coming directly or indirectly from the white man? It is certain that in many cases these produced revolutionary changes in economy, village types, village distributions, migrations, tribal contacts and other features which would afford information basic to studies of culture change. The archaeology of early historic

sites would also help enormously to correct ethnography's attempts to reconstruct pre-contact cultures.

Every tribe in the country cannot, of course, be traced through its archaeology. But a great number of problems can be solved by combining data derived from ethnography and from historical documents with the results of the direct historical approach in archaeology. In fact, if one takes cultural history as his problem, and peoples of the early historic period as his point of departure, the difference between strictly archaeological and strictly ethnographical interest disappears. Archaeology supplements the cultural picture drawn from historic documents and informant testimony. Ethnography explains archaeological materials in their cultural context. And where archaeology traces changes backward into the past, ethnography may trace them forward. It seems certain that historical acculturation studies, such as Keesing's Menomini monograph,[12] which traces cultural changes through the three centuries of the post-contact period and might be called the direct historical approach to ethnology, are destined to find an important place in anthropological literature. Studies of this kind will overlap with and be tremendously facilitated by direct historical studies in archaeology.

Whether the objective of cultural studies is a broad cultural sequence or detailed information on the history of a specific people, the contributions of archaeology will be more or less proportionate to its success in using the direct historical approach. This approach will serve to remind both archaeologists and ethnologists that they have in common not only the general problem of how culture has developed but a large number of very specific problems. If archaeology feels that applying itself to cultural rather than to "natural history" problems seems to relegate it to the position of the tail on an ethnological kite, it must remember that it is an extraordinarily long tail. Vaillant has said: "Unless archaeology is going definitely to shift from a branch of anthropology to an obscure type of mathematics, an effort must be made to relate the rhythms of cultural development with the pulsations of an evolving human society."[13] This requires a perception of problems that involve more than the physical features of material object, bare chronologies, or even classifications.

[12] Keesing, 1939. Kinietz, 1940, also recognizing the importance of distinguishing Indian cultures at different periods within historic times, has ransacked the early literature for information on culture immediately following contact with Whites. It is of some interest that South Americanists, perhaps because most of them have in the past been Europeans and traditionally have devoted more effort to library studies, have made far greater use of old sources than North American ethnologists.

[13] Vaillant, 1935, p. 304.

BIBLIOGRAPHY

COLLINS, H. B., JR.

1927. "Pothsherds from Choctaw Village Sites in Mississippi." *Journal of the Washington Academy of Science*, Vol. 17, pp. 259–263.

1940. "Outline of Eskimo Prehistory." In *Essays in Historical Anthropology of North America*. Smithsonian Miscellaneous Collections 100.

FENTON, W. N.

1940. "Problems Arising from the Historic Northeastern Position of the Iroquois." In *Essays in Historical Anthropology of North America*. Smithsonian Miscellaneous Collections 100.

1941. *Review* of Roebuck Prehistoric Village Site, Grenville County, Ontario, W. J. Wintemberg, AMERICAN ANTIQUITY, Vol. 7, pp. 290–294.

FORD, J. A. and GORDON WILLEY

1940, *Crooks Site, a Marksville Period Burial Mound in La Salle Parish, Louisiana*. State of Louisiana, Department of Conservation, Anthropological Study No. 3.

KEESING, F. M.

1939. *The Menomini Indians of Wisconsin*. American Philosophical Society, Memoir 10.

KIDDER, A. V.

1915. *Pottery of the Pajarito Plateau and of Some Adjacent Regions in New Mexico*. American Anthropological Association, Memoir 2, No. 6.

1916. "Archaeological Explorations at Pecos, New Mexico." *Proceedings of the National Academy of Science*, Vol. 12, pp. 119–123.

1924. *Introduction to the Study of Southwestern Archaeology*. New Haven.

KINIETZ, W. V.

1940. *The Indians of the Western Great Lakes, 1615–1760*. University of Michigan, Occasional Contributions, Museum of Anthropology, No. 10.

KROEBER, A. L.

1916. *Zuni Potsherds*. Anthropological Papers, American Museum of Natural History, Vol. 18.

NELSON, N. C.

1916. "Chronology of the Tano Ruins, New Mexico." *American Anthropologist*, Vol. 18, pp. 159–180.

PARKER, A. C.

1916. *Excavations in an Erie Indian Village and Burial Site at Ripley, Chautauqua County, New York*. New York State Museum, Bulletin 117.

PARKER, A. C. and M. R. HARRINGTON

1922. *Archaeological History of New York*. New York State Museum, Bulletins 235–236.

PARSONS, ELSIE CLEWS

1939. *Pueblo Indian Religion*. Chicago.

1940. "Relations between Ethnology and Archaeology in the Southwest." AMERICAN ANTIQUITY, Vol. 5, pp. 214–220.

RITCHIE, W. A.

1932. "The Algonkin Sequence in New York." *American Anthropologist*, Vol. 34, pp. 406–414.

SPIER, LESLIE

1917. *An Outline for a Chronology of Zuni Ruins*. Anthropological Papers, American Museum of Natural History, Vol. 18.

STRONG, W. D.
1940. "From History to Prehistory in the Northern Great Plains." In *Essays in Historical Anthropology of North America*. Smithsonian Miscellaneous Collections 100.

SWANTON, JOHN R.
1940. Bibliography of—, In *Essays in Historical Anthropology of North America*. Smithsonian Miscellaneous Collection 100.

VAILLANT, G. C.
1935. *Early Cultures of the Valley of Mexico: Results of the Stratigraphical Project of the American Museum of Natural History in the Valley of Mexico, 1928–1933*. Anthropological Papers, American Museum of Natural History, Vol. 35

WEDEL, W. R.
1940. "Culture Sequence in the Central Great Plains." In *Essays in Historical Anthropology of North America*, Smithsonian Miscellaneous Collection 100.

Bureau of American Ethnology
Smithsonian Institution
Washington, D. C.
January, 1941

ADENA POTTERY[1]

JAMES B. GRIFFIN

FOR many years the Adena aspect[2] has been one of the best known prehistoric cultures in the Ohio Valley. The type site was excavated by Dr. W. C. Mills of the Ohio State Museum at the beginning of the twentieth century. At that time, however, it was thought to be a burial place of Fort Ancient peoples.[3] This opinion was not outmoded until the publication of the results of the excavation of the Westenhaver mound by Dr. Mills in which he, for the first time, set forth the concept of an Adena culture as distinct from both Hopewell and Fort Ancient.[4] A list of traits distinctive of the Adena culture was published by Mr. H. C. Shetrone[5] in which no mention was made of the pottery associated with the culture. In a more comprehensive publication by the same author,[6] little attention was paid to the ceramic remains because of the paucity of data. The last statement regarding the presence or absence of pottery in Adena is that of Dr. E. F. Greenman:[7] complete pottery vessels and pottery sherds are here considered as separate cultural items and are placed in Table C, containing traits not characteristic of the Adena culture.

> Table C contains traits which were of no value in identifying the cultural affiliations of the seventy mounds, either because they were found only in one mound in a restricted area, or because they are not adequately described in the original reports . . . Fabric, and vessels of clay, including sherds, may be regarded as Adena traits, but these are general terms, and nothing is known of the type of pottery with the exception of the sherds from Mound 53, in Illinois.[8]

Thus, by 1932 pottery had been given little attention as a trait of the Adena culture, either because it was not reported for Adena sites or because when reported it appeared to be relatively insignificant. In frequency of occurrence, it should have ranked fifteenth in the list of thirty-three characteristic Adena traits. Greenman correctly pointed out that the designs on the pottery from the Montezuma mound in Illinois were Hopewell, and since that site is now usually considered as a component of the Illinois Valley Hopewell, rather than the Adena culture, no decorated Adena sherds were mentioned in Greenman's report.

Within the last ten years, considerable archaeological activity in the Ohio Valley and contiguous areas has brought to light new evidence,

---

[1] This paper was originally presented before the Michigan Academy of Arts, Science and Letters in March, 1939.

[2] It must be noted that such a cultural grouping has not been demonstrated.

[3] Griffin, N. D. [4] Mills, W. C., 1917. [5] Shetrone, 1920.

[6] Shetrone, 1931. [7] Greenman, 1932. [8] *Ibid*, p. 478.

and a re-examination of artifacts excavated in the past and now in various institutions offers new interpretations. It is the purpose of this paper to present some of these data in the belief that it will aid in the understanding of the possible place of the Adena culture in Ohio Valley prehistory. The interpretation of the sites which can be called Adena in this report is somewhat different from that used by Greenman, who, making use of the zoological method which may or may not be applicable to cultural data, included some seventy mounds in the group.

> According to that method of classification and description the first specimen of the type to be found and described is the type specimen . . . The inclusion of other mounds under the specific term Adena is made herein upon the basis of the characteristics exhibited by the Adena Mound. [p. 410.]
>
> Table A consists of two parts. The traits numbered from 1 to 33 are all present in Mound 1, the Adena Mound, and it is on the basis of these first 33 traits that the other 69 mounds are identified as Adena. The method of reasoning involved in this identification is as follows: Each of the 69 mounds contains from two to 17 of the 33 traits found in Mound 1. Among these 33 traits there are some which have a higher identification value than others, either because they are found a large number of times in a large number of mounds, or because they are found, so far as is known to the writer, only in mounds of the Adena type. Cooper bracelets are an example of the former type of trait, and grooved stones of the latter. If a mound exhibited but one of these traits, with nothing indicative of the Hopewell or any other culture type, it would be necessary to include it in the Adena group. [p. 416.][9]

Following this procedure, the Montezuma mound in Illinois was listed as an Adena mound although the pottery and other artifacts were more closely allied to Hopewell. Greenman recognized in his conclusions a close connection between these two divisions.

> Finally, to a large extent it is a different numerical predominance of the same or similar traits which constitutes the difference between Adena and Hopewell. The Adena culture, as it is presented in this study, may be said to be characterized by the first 12 traits in Table A . . . With the exception of Traits 5 and possibly 7, these are all found to some extent in mounds of the Hopewell type.[10]

Since this is not the place to write an analysis of the Adena culture in the light of the recent evidence, some of the mounds heretofore considered to be Adena will be so considered here. While it is true that a number of mounds belonging to this cultural division have not contained pottery, it is equally true that a good proportion have, and that some of the reported absences were due to the small quantity and quality of the ware associated with the Adena mounds as well as the technique of excavation. This failure to use very small sherds as a possible valuable help in recognizing cultural relations was particularly true of the earlier workers.

---

[9] *Ibid.* [10] *Ibid*, p. 493.

In the excavation of the Adena mound, Mills found that it was constructed in two stages, or at least of earth from two different sources. The inner mound contained a sub-floor pit and the majority of the burials were near the floor line. Most of the burials in the primary mound contained artifacts. The last period of mound construction had burials scattered throughout the structure without log tombs, bark covering and with few artifacts. However, during the second horizontal cut, beginning at the top, Mills discovered a burial in the fill of the second mound.

> Five feet to the east of this first skeleton was discovered the skeleton of an adolescent, upon the wrist of which were found two beautiful copper bracelets, similar in every respect to those found upon the first skeleton, and having upon the head a headdress made of large strips of mica cut into shape and pierced with holes for attachment. Near the head of this skeleton was found a broken earthen jar which was carefully removed.[11]

It is clear then that a pottery vessel was found in the Adena mound, which has been taken as the type site for the culture, and that this pot was found with a burial which had ornaments of Adena type. Unfortunately, this vessel has disappeared and there are no photographs or descriptions of it. Whether there were pottery fragments in the mound as well is not now known.

No pottery is mentioned in the description of the excavation of the Westenhaver[12] or Ulrich[13] components. Regarding the relatively recent excavation of the Beech Bottom mound in West Virginia, it is explicitly stated that there was no pottery in the structure.[14]

In February, 1936, Glenn A. Black sent some pottery sherds from the Nowlin mound to the Ceramic Repository for identification and comment. According to Black's cultural analysis, the Nowlin mound is much more characteristic of the Adena culture as defined by Greenman than is the type site.[15] This pottery can be briefly characterized as a smoothed surface ware with limestone temper.[16] Unfortunately, very few sherds were present and only a suggestion as to the kind of ware associated with the Adena culture could be obtained. A tenuous connection with Hopewellian material in Illinois and with some of the Woodland pottery from cave sites in the Southeast was indicated in the report. However, the pottery from this site offered concrete evidence of a specific type of pottery which might be representative of the Adena culture and as such was of considerable importance.

During the first half of 1936, studies were made of a number of

---

[11] Mills, W. C., 1902, p. 458. [12] Mills, W. C., 1917. [13] Mills, T. B., 1919.
[14] Bache and Satterthwaite, 1930. [15] Black, 1936. [16] Griffin, 1936.

museum collections which furnished additional comparative material strengthening the hypothesis of an Adena pottery type. A portion of the grit and limestone tempered pottery from the cave sites in Kentucky, now in the collection of the Museum of Archaeology, University of

FIG. 40.—Adena sites with pottery and Hopewell sites with a similar ware, Ohio Valley.

Kentucky, have a plain or smoothed surface similar to that from the Nowlin mound. On the whole, however, this ware is somewhat thicker and of a coarser texture. It is associated in these cave sites with cord marked sherds and, more rarely, with a check stamped surface finish. The pottery assemblage is markedly different from that of the Nowlin mound and of the Ohio Adena sites, even though one of the Kentucky cave types is rather closely related to Adena pottery.

The Whitehead mound, Franklin County, Indiana, was excavated by Mr. Frank Setzler in the summer of 1928. This mound is but two miles from the Ohio line, and is in the drainage pattern of the Miami

River. In the report on the excavation, the finding of pottery on a prepared floor is mentioned from time to time.[17] The cultural affiliations of this mound were not clearly apparent when the report was written, and hence it was not assigned to any division.

> The type of artifacts found here gave very little evidence as to the culture of this mound. The free use of pottery might indicate a Fort Ancient culture, but no other traits of this culture, e.g., bone tools, or shell ornaments, were evident. The slate gorget resembled the Adena culture, but here again we have only this one criterion. With such scanty evidence we can draw no conclusions as to the classification of the culture of the White head Mound.[18]

Through the kindness of the Indiana Historical Society, a representative collection of sherds from this site is in the collection of the Ceramic Repository (Pl. XXX). One distinctive group has a well smoothed, compact outer surface and a slightly less compact inner surface. The grit temper is almost entirely a hornblende or augite and the black particles stand out from the reddish paste. Both the outer and inner surfaces and the core of 169 body sherds have a reddish color. Fourteen other body sherds, probably from this same vessel, have a smoke blackened outer surface. The ware is very friable. There is a considerable proportion of temper present and the texture is medium coarse to coarse. Many of the tempering particles are 3 and 4 mm. in diameter. Two rim sections may belong to this group of body sherds. They have a narrowed and flattened lip 6 mm. wide, with the lower rim 8 mm. thick. There is a slightly thickened upper rim band which extends 1.5 cm. below the lip and at its lowest line has a thickness of 1.1 cm. Thickening is primarily on the outer wall. This rim feature is also present on another vessel from this site and consistently recurs on pottery from Adena mounds. While the rim fragments are quite small the rim shape was probably slightly flaring. The body sherds have a considerable range in width, varying from .6 to 1.1 cm. The vessel side wall was apparently almost vertical, with a decided angle at the point where the curve to the base begins.

What is probably another vessel is represented by a restored section of the lower side wall and a portion of the base. On this vessel a marked change is noticeable between the side of the jar and its basal area. This change is accentuated on the exterior surface more than on the interior. The lower body is thickened noticeably at this change in direction. The middle side wall is 6 mm. thick, while it is 1.1 cm. thick at the angle and becomes slightly thinner as the base is approached. The tempering material is crushed rock, with many of the fragments having a diameter of

---

[17] Setzler, 1930.

[18] *Ibid.*, p. 496.

4 and 5 mm. The fragments are angular. The texture is friable and medium coarse. The outer surface is a reddish to greyish black color. The paste and inner surface are a very dark grey. The rim sherd which apparently belongs to this large body section has the same coloration, except that the core and inner surface approaches a tan color, and is characterized by the same type of crushed grit temper. The lip is narrowed and rounded and has a thickness of 5 mm. The outer wall below the lip has an almost vertical drop of 1.8 cm., while the inner wall maintains a gradual curve. The outer rim curves rather abruptly inward at this point, and produces a thickness of 1.2 cm, while a short distance below it is but 7 cm. thick.

A rather large group of sherds has considerable variation in color, from smoke blackened through various shades of tan to a reddish. The core is sometimes the color of the surface but more often is a grey. The tempering material is crushed rock with a large percent of quartz and feldspar. The texture is friable and is medium coarse to coarse. Some of these fragments in sherds 1.1 cm. thick are 8×7×4 mm. Both outer and inner surfaces are smoothed on 75 body sherds while erosion has removed the surface of an additional 11 sherds, allowing the arrangement of the tempering particles to be plainly visible on the flat surface. There are four rim sherds that were perhaps associated with body fragments of the type just discussed. Two of them have eroded outer surfaces and rounded lips. The third has a flattened lip 6 mm. wide and slightly flaring rim which has a thickness of 8 mm. The fourth rim has a rounded lip 7 mm. wide and a thickened upper rim whose lower border is 1.8 cm. below the lip and 1.1 cm. thick. This was probably a flaring rim.

Seven body sherds have a peculiar ash grey surface color and a considerable amount of surface crackle.

A plain rim 8 mm. wide, with a very slight flare, has a rounded lip with a width of 5 mm. The outer surface and wall are a reddish color while the inner surface and wall are a very dark grey. The temper is primarily of black crushed rock and has a medium texture. Two rim sherds evidently from the same vessel are straight, with a height of 4.3 cm., but were attached to the body of the vessel at an angle of about 40 degrees. The lip is slightly flattened and is narrower (6mm.) than the middle rim area (1.2 cm.) or the rim base, which is 1 cm. wide. This rim shape is also found on vessels at the Hopewell group in Ross County, Ohio. In the crushed rock temper, quartz and feldspar are predominant.

A lower rim and body sherd has a small mammiliform protuberance with a width and height of 1.7 cm. which projects 7 mm. from the outer wall. This type of node is found on Adena pottery at a number of sites

in Kentucky. The texture and temper conform to the quartz and feldspar tempered sherds from this site.

One small, smoothed surface body sherd has a brownish tan exterior and a smoke blackened interior surface. The paste is more compact than is the case with the rest of the sherds from the site and the tempering material is limestone. The tempering particles on the exposed surfaces have weathered away. This sherd is also thinner (6 mm.) than the majority at the site.

There are five cord marked body sherds whose temper and texture is markedly similar to the large body of smoothed surface specimens. They are but 6 mm. thick and in this respect differ from the more common type. The cord impressions are parallel and were presumably applied vertically. There was some overlapping and the cord impressions are not clearly defined. The cords are 2 to 3 mm. wide. One cord marked sherd has shallow, poorly defined cord impressions, a smoothed lower rim area and a sandy grit temper. The particles of the tempering material are two to 3 mm. in diameter. The surface and paste are black to dark brown.

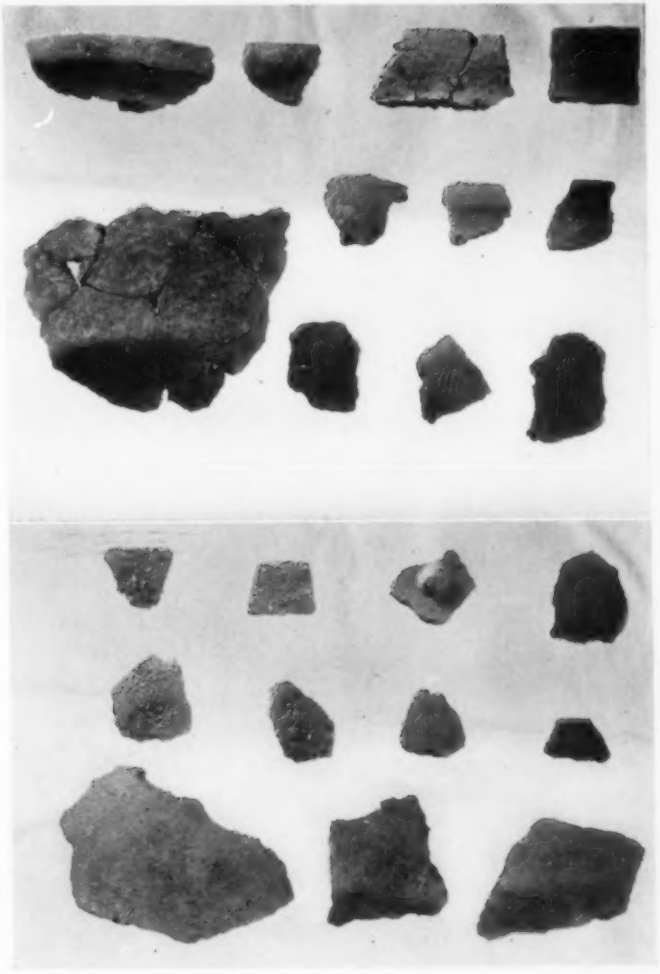
In the tumulus called Mound Camp in Franklin County, Indiana, Mr. Setzler also found pottery. The artifact associations and mound structure were such as to demonstrate that the site clearly belongs to the Adena culture group.

> In the same section near the river bank and directly on top of the floor a large number of broken potsherds were found strewn over an area 5 feet square extending into the next 5-foot section. Some of the fragments were very minute, but some were large enough to enable a partial reconstruction. The restoration showed that these sherds were from one vessel which had a well formed rim, below which was a pleasing decoration incised on the body of the vessel; the design was a five line diamond. This decoration was 3 inches wide and extended around the entire vessel. Two small legs were found, one of which was partly broken. Originally it probably had three or four legs. The sherds comprising this vessel were found in four distinct groups. In the center of one of these groups several fragments of red ochre were found. This pottery was very uniform in texture, made from light-colored clay, which was quartz tempered. The average thickness of the sherds was 3/10 inch. This vessel had been baked very slowly and showed no signs of cooking or intense heat.[19]

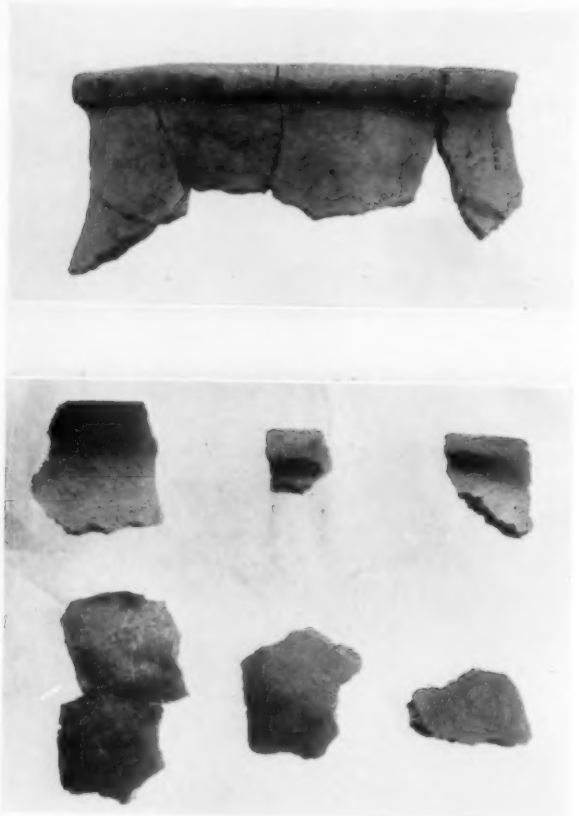
Mr. Setzler's description of this vessel is suggestive of one recently excavated from an Adena mound by the University of Kentucky. The vessel from Mound Camp is being reconstructed by the Indiana Historical Society and will be described at a later date. This site was not listed as having pottery, although it was included in the Adena analysis.

In this same area, the Glidwell mound was excavated by Dr. G. W. Homsher in 1881. This mound was an Adena structure, and although

[19] *Ibid.*, pp. 447–448.



Pottery from the Whitehead Mound, Indiana.



Pottery from the Engelder Mound, Ohio.

the pottery is not now available, from the description given in the report, it appears to fit into the range of Adena pottery as described in this paper.

> With this group of six skeletons were found one bone bodkin or needle; two arrowpoints; several pieces of animal bones, with a few fragments of pottery. . . . With the group of three skeletons were found several pieces of pottery. . . . A fine gorget, about one-fourth of a large celt, some fragments of pottery, and animal bones were found. . . . The fragments of pottery removed from this mound bore no ornamental etchings or moldings upon them. They were unglazed, both externally and internally, and were made of fine quartz sand or pulverized quartz, pulverized shell, and fine, compact clay.[20]

The only atypical feature of the pottery according to Homsher, is the shell temper, but since limestone fragments are sometimes mistaken for shell particles, this may well be the explanation for this apparent discrepancy.

Somewhat out of the distribution of sites attributed to the Adena culture is the Prather site in Clark County, Indiana, excavated by E. Y. Guernsey. On the floor level of Mound 1 fragments of a single vessel were recovered (Pl. XXXII, Fig. 2). The temper consists of limestone fragments varying in size, with the largest particles 3 and 4 mm. in diameter. There is a large amount of temper in the rather compact clay. The texture is medium coarse. The color in both exterior, interior and core is a light buff to reddish tan. The exterior surface is well smoothed with vertical smoothing marks, while the interior is less well smoothed. On the interior surface near the base is a heavy coating of dark red paint. This was probably intentionally applied and was not part of the contents since the paint does not have a horizontal distribution on the side walls. The thickness varies from 5mm. near the rim to 9 mm. near the base.

Two mounds in Preble County, Ohio, near the Franklin County, Indiana, line are reported by Greenman as having pottery.[21] One of these, the Lee mound, was excavated by H. R. McPherson, while Mound 34 has no information as to the excavator or where the site was described.

A mound in Hamilton County, Ohio, on the land of a Mr. Hahn (not the Fort Ancient component village by the same name) is represented by sixteen sherds in the Peabody Museum. These sherds have coarse limestone or grit temper. The limestone has almost all been leached out. The surfaces on the limestone tempered sherds are smoothed but those on the grit tempered sherds are hubbly due to the extrusion of the tempering particles. The body sherds are from .6 to 1 cm. thick.

The Edwards mounds in Hamilton County, while perhaps not cer-

[20] Homsher, 1884, pp. 724–727.

[21] Greenman, 1932, Table C.

tainly identified as Adena, nevertheless share quite a number of traits with the Adena-Hopewellian complex.[22] One of these mounds also contained pottery.

In the summer of 1938, Mr. Richard G. Morgan, Curator of Archaeology of the Ohio State Museum, excavated a small Adena mound south of Columbus which contained pottery which can be classified as Adena Plain.

Putnam's excavations at Serpent Mound revealed highly significant data regarding cultural associations in the Ohio Valley. His report was published in a popular magazine[23] and my discussion of the artifacts and pottery, now in the Peabody Museum, is still in press. In brief, there is strong evidence that the large conical mound and also some of the burials in the village site constitute a component of the Adena aspect which is overlaid by artifacts and pottery types belonging in the Baum focus of the Fort Ancient aspect. The ceramic remains from the mound and from the lower levels of the village site can be classed as Adena pottery (Pl. XXXII, Fig. 1).[24] The most important variation is the absence of the thickened rim.

The Redman mound in Ross County was excavated by W. K. Moorehead[25] and is listed in Greenman's study as Mound 10, but is not credited with pottery. Moorehead's reference to the find indicates that the pottery probably was inclusive in the mound

> At a point seven feet from the margin, on the bottom of the mound, was a small amount of black earth (A), containing over two hundred pieces of pottery, the fragments of vessels which were perfect when deposited, but had afterwards been crushed by the weight of the earth resting upon them.

Some of this pottery is now in the United States National Museum. It has very large particles of crushed rock for tempering material, some as large as .65 cm. in diameter, and a hardness of 3. The interior and exterior surfaces are a brownish tan while the interior paste is a dark grey. The interior is roughly smoothed, as is the exterior surface. The rim is short and flaring and the lip is rounded to flattened. Both the lip and the rim have a thickness of 9 mm.

In the above mentioned publication by Moorehead there is an account of the excavation of the Porter mound group in Ross County, a site of the Hopewell culture. The pottery from this site indicates a close connection with that found in Adena mounds. With the Porter mound material in the United States National Museum are grit tempered medium coarse textured sherds, with a light brown to tan color and a

---

[22] Putnam, 1884, pp. 342–343.
[23] Putnam, 1890.
[24] Description given in Griffin, N.D.
[25] Moorehead, 1892, p. 148.

hardness of 2. The exterior surface is roughly smoothed and there is some surface crackle. A rim sherd with a slight incurve has a flattened lip which slopes toward the interior. The lip thickness is 1.2 cm, that of the rim .75 cm.

The Metzger mound near the northern border of Ross County, Ohio, was excavated by W. K. Moorehead and is listed as Mound 13 in Greenman's analysis. After describing the remains of a log tomb Moorehead wrote, "There were here and there fragments of red pottery."[26]

In the collections of the United States National Museum, there are small series of artifacts from some of the early excavations in Ohio. The Clough group of three mounds near Waverly, Pike County, was excavated by Gerard Fowke in the nineties and reported upon by him three times. One of this group is placed as Mound 17 in Greenman's study.[27] The pottery from this group is homogeneous. It is grit tempered, with medium coarse texture, friable, and has a hardness of 2–2.5 or 2.5. The exterior surface is roughly smoothed and there is little indication of any cord markings. The exterior color, except where it is smoke blackened, is usually brown or tan. The paste is most commonly a dark grey. One rim sherd 7 mm. wide is straight and has a flattened lip 8 mm. wide. Another rim is straight but was attached to the shoulder area at a 40 to 45 degree angle. The lip is rounded and 6 mm. wide.

The Van Meter mound group in the same county was also excavated by Fowke and is listed as Mound 18 in Greenman's analysis. In his first report on this site, Fowke mentions that pottery was found in the mound fill.[28] The United States National Museum has some material from this group, including cloth which was preserved by the copper salts emanating from some 58 copper beads. This cloth is the finely woven twilled-twined variety with the hidden warp called by Miner a "determinant" of Hopewellian.[29] Unfortunately none of the pottery has been preserved.

The Staats mound in Butler Township, Knox County, excavated by J. D. Middleton for the Bureau of American Ethnology, produced very little in the way of artifacts, so that it is difficult to accurately classify it.[30] The description of the mound structure is suggestive of Adena-Hopewell affiliations and also serves as another link between that cultural division and the stone slab and stone vault mounds of the Mississippi Valley. The pottery in the United States Nation Museum from this mound may all have belonged to one pot. The sherds are grit tempered, have a medium coarse texture, a hardness of 2–2.5, and a

[26] Fowke and Moorehead, 1894, p. 317.
[27] Greenman, 1932, p. 510.
[28] Fowke and Moorehead, 1894, p. 309.
[29] Miner, 1936.
[30] Thomas, 1894, pp. 443–447.

smoothed exterior surface. The color varies but is predominantly a greyish-tan. The majority of the pieces are 1 cm. thick. One rim has a flattened lip which is 5 mm. wide.

The Taylor mound in Licking County, Ohio, near Newark, was excavated by O. C. Marsh.[31] It is listed as Mound 39 by Greenman. Marsh describes the finding of "Two small vessels of coarse pottery. . . ."[32]

A mound in Athens County, Ohio, was examined in 1875 and 1876 by Mr. E. B. Andrews for the Peabody Museum and was named Beard mound by him. His excavation was incomplete, but he mentioned the finding of pottery.

> On the southwest side of the Beard mound I find large quantities of the dark soil, ashes, charcoal, bits of bones some burned and some not, fresh-water shells, among which are several species of the Unionidae and sometimes land snails, the Helices, bits of broken pottery and of broken flints, and small stones generally burnt, such as might be in fires built on the ground.[33]

When I examined the pottery from this site in the Peabody Museum, and for some time afterward, I was unaware that the Beard mound was the same as the Coon mound excavated by Greenman. Dr. Greenman also found pottery sherds during his excavations in the mound.[34] The Peabody collection has both grit and limestone tempered sherds. While the majority of the pieces have a smoothed outer surface, five or six have cord-wrapped paddle marks. One of the rim sherds has a short straight rim which is attached at an angle to the neck line. It is similar to an angled rim shape found at the Hopewell group in Ross County and to pottery rims described above from the Whitehead mound in Indiana. Mound 22 of the Zenner group, also reported by Andrews, contained at least six sherds of this grit tempered smoothed surface pottery.

In January, 1939, a number of communications from Dr. C. J. Engelder of Pittsburgh, Pennsylvania, discussed his partial excavation of a small mound in Perry County, Ohio, near Flint Ridge. This mound was about 60 feet in diameter and 6 feet high. It was dome shaped and composed of the same type of earth as was found in the adjoining fields. In the heart of the mound and covering an area ten feet in diameter was a burned red clay area with several charcoal logs in irregular positions imbedded in the clay. Two feet above the floor of the mound a single leg bone was found accompanied by a plano-convex expanded center bar gorget with two holes drilled from the plane surface only. On the ground level and through the mound were scattered bits of charcoal, burned stones, bits of flint chips, a few cracked animal bones, about 150 potsherds, and in three areas, fragments of human skulls. The other

[31] Marsh, 1866.
[32] Fowke, 1902, p. 334.
[33] Andrews, 1877.
[34] Personal communication.

artifacts in this mound were an unfinished diorite celt; a leaf shaped grey flint point with convex sides and base; a stemmed point with slightly convex base, horizontal shoulders and slightly convex sides; a broken antler arrow point; and one globular shell bead. A series of sherds was sent as a loan collection to the Ceramic Repository and further substantiates the affiliation of the mound suggested by the few artifacts.

As nearly as can be determined, the sherds are from four vessels. They are all grit tempered with medium coarse texture and a smoothed outer surface (Pl. XXXI). The first vessel is represented by almost two-thirds of the rim and has a lip diameter of about 23 cm. The outer rim has a thickened band extending 1.6 cm. below the rounded to slightly flattened, narrowed, lip surface. The lip is 5 mm. wide, the base of the thickened rim is 1 cm., while the rim below the thickening is 6 mm. The second vessel is indicated by two rim sherds which have a narrow, flat lip 3 mm. wide, an inner bevel 8 mm. below the lip and a thickened outer rim area extending 2 cm. below the lip. The thickened rim is 1.2 cm. wide, while below the rim strip, the rim is but 7 mm. wide. The third vessel has a less well smoothed surface and a poorly defined thickened upper rim. The lip is narrowed, flattened and has a width of 4 mm. The fourth vessel does not have a thickened upper rim but has a flat lip 7 mm. wide, and the rim is 8 mm. wide. The rim shape on all four vessels is vertical to slightly flaring and is placed on a slightly constricted mouth jar. Two body sherds are probably referable to vessel No. 4, and two other body fragments to the basal area of one of the first three jars. These fragments are 1 cm. thick.

A mound in Columbus is called No. 36 by Greenman and it is credited by him with pottery.[35]

Mound 23 of the Spring Hill group north of Charleston, West Virginia,[36] is listed as Mound 61 by Greenman and credited with pottery, yet I am unable to certify this record. Other tumuli of the Spring Hill group which may belong to the Adena culture did however produce pottery.

The detailed analysis of the pottery from the Wright mounds in Montgomery County, Kentucky, by W. G. Haag[37] considerably strengthens the proposition that the Adena people both knew and used pottery of a definite type. Haag's discussion of the correlation between the presence or absence of pottery in an Adena mound and the use of village site detritus as a part of the mound fill deserves serious consideration. The recent excavation of a Hopewell mound near Alliance, Ohio, by

[35] Greenman, 1932, pp. 445, 515. [36] Thomas, 1894. [37] Haag, 1941.

non-professional investigators, did not produce any pottery, yet no one would assert that the builders of that mound did not use pottery.

One of the few questions which might be raised regarding Haag's discussion would be with regard to his hesitancy in assigning the cord-marked sherds to the same cultural status as those belonging to the type called Adena Plain. The presence of similar cord-marked sherds in Adena mounds in Indiana and Ohio should serve to remove this doubt. The presence of this ware in cave sites in Kentucky has been commented upon above and has also been affirmed by Haag. This ware is also found in at least one cave along the Ohio River in Ohio.

A very similar limestone and grit tempered ware is the dominant ceramic element in the Hopewell sites of Ohio. After examining the collections in the Ohio State Museum it is my belief that the earliest of these sites have a stronger element of limestone tempered, plain surface pottery than do the later sites. At least some of the sites such as Tremper, Harness and the Hopewellian component at Fort Ancient, have a minor per cent of grit or limestone tempered, cord marked pottery. On the other hand, Hopewell, Seip and the Turner site have a relatively high percentage of cord marked pottery and comparatively little plain ware. At the large Hopewellian site in Kentucky, opposite the mouth of the Scioto the dominant pottery type is a plain and cord marked, limestone tempered ware.

Intensive studies of Hopewellian pottery from western Michigan, northern Indiana, and the Illinois Valley, and less detailed examination of Iowa, Wisconsin and Missouri material clearly indicate a significant ceramic separation from the classic Ohio Hopewellian sites. Naples Stamped, so characteristic of those localities, does not play an important role in Ohio, and the pottery type, called Adena Plain by Haag, which may be tempered either with limestone or grit, does not enter into the ceramic complex of the Illinois Valley Hopewell and related sites.

In the Ohio area, the Hopewell sites are not only richer in non-ceramic content than the related Adena mounds, but their pottery reveals a more complex development with indications of much wider contact with contemporary neighboring groups. A possible interpretation is that in the Ohio area the Adena sites preceded the Hopewell. If the Robert Harness mound, excavated by Mills, was actually an Adena site,[38] there is tentative evidence for a Hopewell intrusion into an Adena component. The presence of incised jars with a design and technique resembling Marksville Incised plus the larger and more complex Adena sites in Kentucky, both structurally and culturally, suggests the pos-

[38] This hypothesis is presented in Griffin, N. D.

sibility that some of the Kentucky sites were contemporaneous with Hopewell in Ohio, Marksville in Louisiana, and Copena in northern Alabama. There is a fundamental resemblance in shape, temper, and in some cases surface finish as well, between the Copena pottery types and those appearing in Adena and Ohio Hopewell.

It is to be hoped that further excavations and comparative analyses of these related cultural groups will confirm or reject the temporal and cultural relationships suggested above.

BIBLIOGRAPHY

ANDREWS, E. B.
1877. "Report of Explorations of Mounds in Southeastern Ohio." Tenth Annual Report of the Peabody Museum of American Archaeology and Ethnology, pp. 51–74.

BACHE, CHARLES and LINTON SATTERTHWAITE
1930. "The Excavation of an Indian Mound at Beech Bottom, West Virginia." The Museum Journal, Vol. 21, Nos. 3–4. Museum of the University of Pennsylvania, Philadelphia.

BLACK, Glenn A.
1936. *Excavation of the Nowlin Mound.* Indiana History Bulletin, Vol. 13, No. 7.

FOWKE, GERARD
1902. *Archaeological History of Ohio.*
1928. *Archaeological Investigations—11.* Bureau of American Ethnology, Forty-fourth Annual Report.

FOWKE, GERARD and W. K. MOOREHEAD
1894. "Recent Mound Exploration in Ohio." *Proceedings of the Academy of Natural Sciences of Philadelphia, 1894,* Part 11, pp. 308–321.

GREENMAN, E. F.
1932. "Excavation of the Coon Mound and an Analysis of the Adena Culture." *Ohio State Archaeological and Historical Quarterly,* Vol. 41, No. 3.

GRIFFIN, JAMES B.
1936. "Notes on the Pottery" in Black, 1936.
N. D. "The Fort Ancient Aspect: Its Cultural and Chronological Position in Mississippi Valley Archaeology." In press.

HAAG, W. G.
1941. "A description of the Wright Site pottery." In W. S. WEBB, *The Wright Mounds,* University of Kentucky Reports in Anthropology, 1940, Vol. 5, No. 1.

HOMSHER, G. W.
1884. *The Glidwell Mound, Franklin County, Indiana.* Annual Report of the Smithsonian Institution for 1882, pp. 721–728.

MARSH, O. C.
1866. "Description of an Ancient Sepulchral Mound near Newark, Ohio." *The American Journal of Sciences and Arts,* Vol. 42, pp. 1–11.

MILLS, T. B.
1919. "The Ulrich Group of Mounds." *Certain Mounds and Village Sites in Ohio.* Columbus. Vol. 3, Pt. 2.

MILLS, W. C.
1902. "Excavations of the Adena Mound." *Ohio Archaeological and Historical Quarterly*, Vol. 10, No. 4.
1917. "Explorations of the Westenhaver Mound." *Ohio Archaeological and Historical Quarterly*, Vol. 26, No. 2.
MINER, HORACE
1936. "The Importance of Textiles in the Archaeology of the Eastern United States." AMERICAN ANTIQUITY, Vol. 1, No. 3, pp. 181–192.
MOOREHEAD, W. K.
1892. *Primitive Man in Ohio*. New York.
PUTNAM, F. W.
1884. "Seventeenth Report of the Curator." *Annual Reports of the Peabody Museum of American Archaeology and Ethnology*, pp. 342–343.
1890. "The Serpent Mound of Ohio." *Century Magazine*, Vol. 39, No. 6.
SETZLER, F. M.
1930. "The Archaeology of the Whitewater Valley." *Indiana History Bulletin*, Vol. 7, No. 12.
SHETRONE, H. C.
1920. "Culture Problem in Ohio Archaeology." *American Anthropologist*, Vol. 22, No. 2, pp. 144–172.
1931. *The Mound Builders*. New York.
THOMAS, CYRUS
1894. *Report on the Mound Explorations of the Bureau of Ethnology*. Bureau of American Ethnology, Twelfth Annual Report.

University of Michigan
Ann Arbor, Michigan
February, 1941

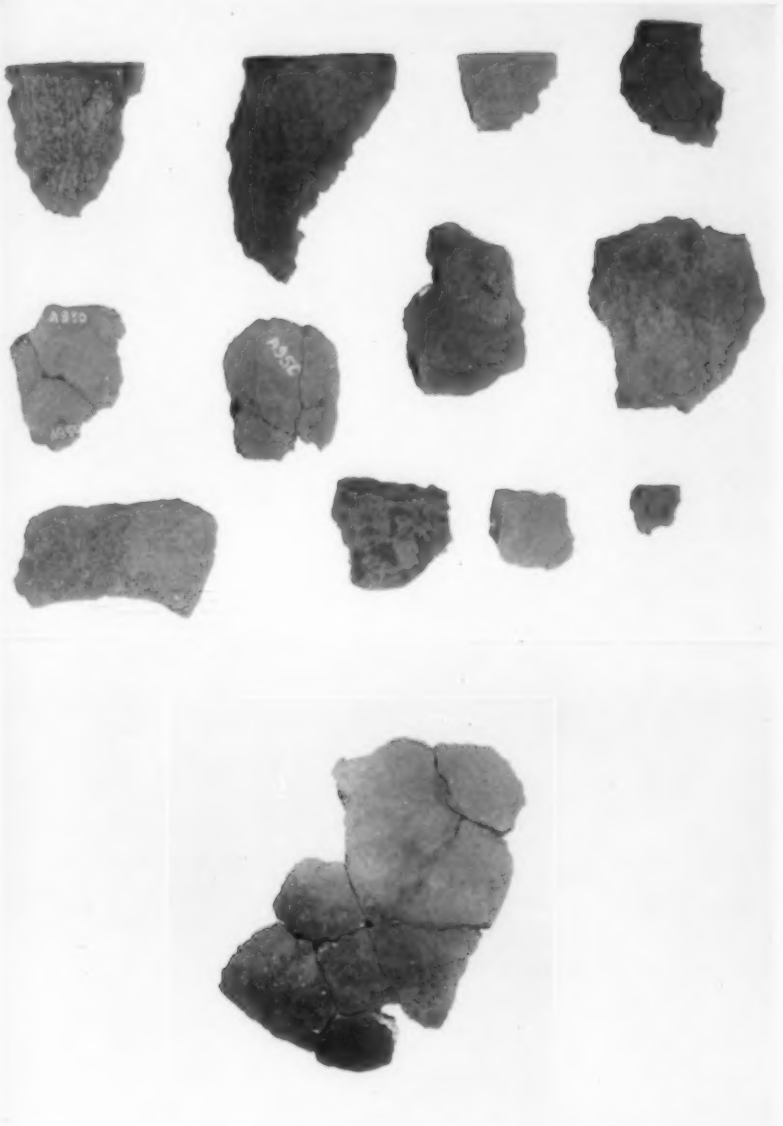
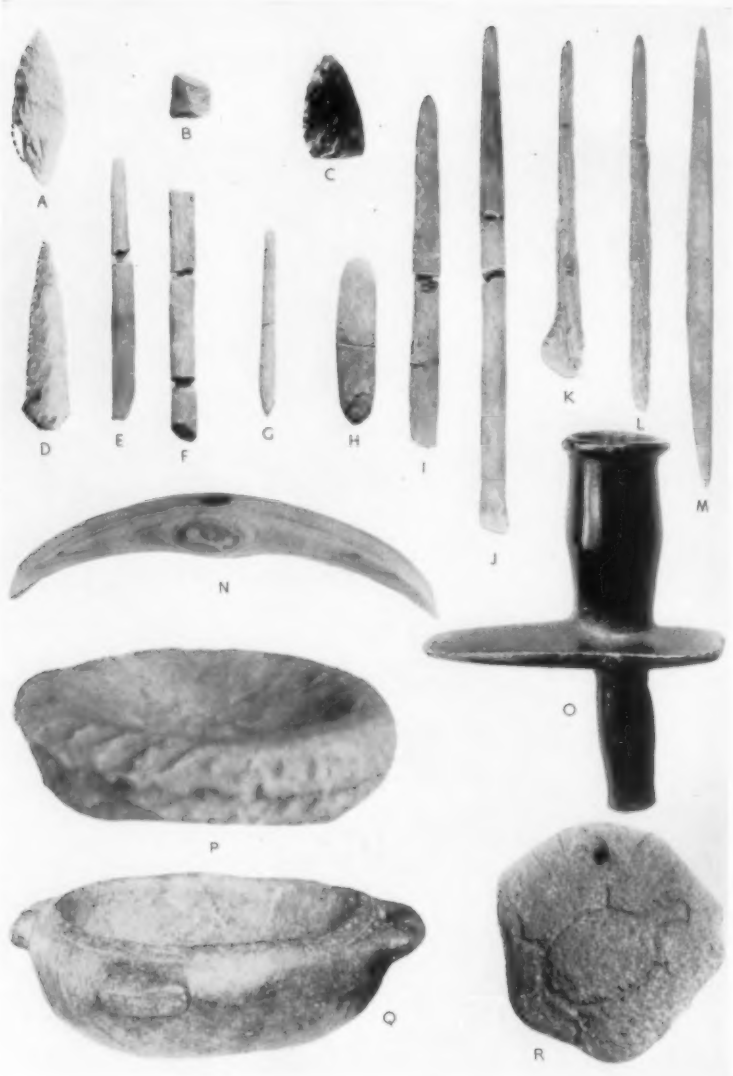


FIG. 1 (*above*), pottery of Adena type from the Serpent Mound, Ohio. FIG. 2 (*below*), lower section of Adena Plain vessel from the Prather Mound, Indiana.



Artifacts from the Manchester region, New Hampshire.

SOME ANCIENT INDIAN VILLAGE SITES ADJACENT TO MANCHESTER, NEW HAMPSHIRE

HARLAN A. MARSHALL

IN EARLY colonial times the Manchester region was, at certain periods each year, the home of Passaconaway, chief of the Pennacook tribe and the head of the Pennacook Confederacy. This confederacy includes such tribes as the Agawam, Wamesit, Nashua, Souhegan, Pen-

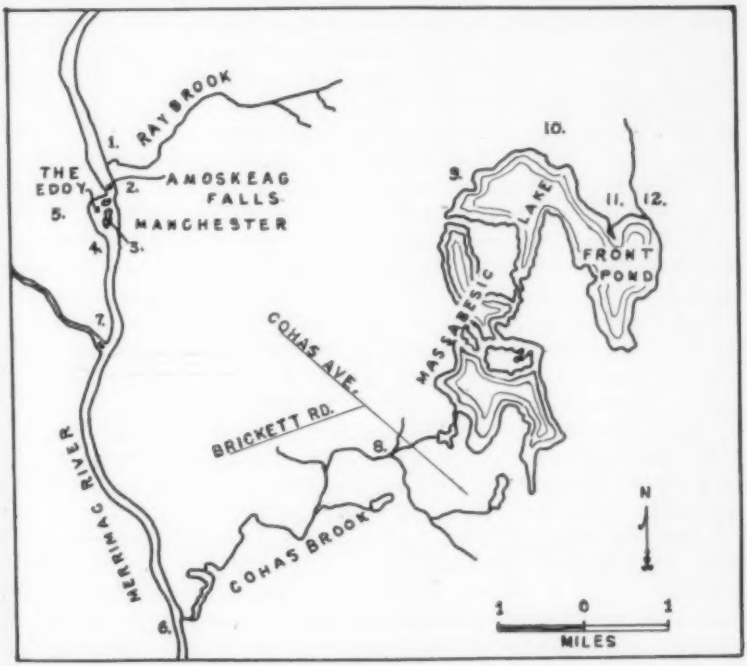


FIG. 41.—Indian village sites near Manchester, New Hampshire.

nacook, Winnepesaukee and Namaoskeag (Amoskeag). When the first settlers arrived in the Manchester region, they found a number of villages in which lived a large native population. Not only the Pennacooks lived here but other friendly tribes came to Amoskeag Falls at the proper season to take advantage of the excellent fishing. That this situation had existed for some time is evidenced by the large number of village

sites and by the fact that even now, after large quantities of artifacts have been collected, specimens may still be found in the ground. The region may be divided conveniently into a number of districts which are described below.

THE AMOSKEAG VILLAGE SITES

From the distribution of the artifacts along the Merrimac River in the vicinity of Amoskeag Falls, it appears that the banks of both sides of the river, southward from Ray Brook, for at least three-quarters of a mile, were rather thickly populated. It is estimated that over 10,000 artifacts have been secured by collectors who have worked over this area for many years. The region can be divided into several large sites.

At the Ray Brook site (Fig. 41, *1*), located at the confluence of the brook and the Merrimac, have been found many stone artifacts. It appears that the site was once a large camping ground

The principal village site on the east side of the river (Fig. 41, *2*) is located on the height of land now known as the Mrs. Frederick Smyth Estate. The site extends southward along the river for about one-quarter of a mile. In one section of the height of land, the discovery of several baskets full of flint chips is believed to be evidence of an Indian workshop. Other specimens include grooved axes, adz blades, scrapers, gouges, pestles, knives, spear and arrowheads, and potsherds. The Kidder Collection, now stored in the residence of Mrs. Frederick Smyth, comes largely from this area.

It is interesting to note that the last Indian living in this locality made his abode in a wigwam erected at the junction of Christian Brook and the Merrimac. The mouth of the brook was opposite the islands in the Eddy; it has been obliterated by the city.

The two islands in the river just below the Falls were used as camping grounds probably over long periods of time (Fig. 41, *3*). Many stone artifacts, similar in type to those found on the banks of the river, have been excavated from these islands. In addition, many highly decorated potsherds, as well as stone ornaments and knives of fine workmanship, have been unearthed near several fire pits on the northerly island. The finest thing which has been reported is a nicely made stone pipe (Pl. XXXIII, *O*) from the southerly island, found on the surface soon after the flood of 1936.

"The Eddy" site is located on the west bank of the river opposite the islands (Fig 41, *4*). The name comes from the narrow bit of water which the islands protect from the main river. Here the water does not run as swiftly. The aborigines constructed fish weirs at the southerly end of the Eddy by placing large boulders at convenient distances and

filling the spaces between them with brush. Salmon, eels, and shad were caught in the basin thus formed. The village site covered an area about one-quarter of a mile long and extended westward to the high bluffs of the river bank. Hundreds of stone artifacts and an abundance of potsherds have been removed from this site.

The Table Land site occupies about one hundred acres on the top of a bluff which is about one hundred feet high. This bluff lies to the west and above the Eddy site (Fig. 41, *5*). According to Potter's *History of Manchester* this area, as well as the area east of Amoskeag Falls (Fig. 41, *2*), was the place where the Indians assembled each year for their political conferences and for their ceremonies. Artifacts of all kinds, including pottery, hammerstones, gouges, knives, adz blades, grooved axes, and spearheads, together with a large number of finely worked arrow points, have been found here.

One concentration of artifacts was noted at the northern end of this plateau, directly west of Amoskeag Falls. Noteworthy among many finely wrought objects brought to light here was a bannerstone (Pl. XXXIII, *N*).

In 1937, five Indian burials were excavated on the table land just west of the Eddy, about one-quarter of a mile from the shore. Two graves contained the remains of adults and the third, the skeleton of a child. The three skeletons were flexed. Included in the graves, some actually among the hand bones of the skeletons, were some of the ceremonial stones illustrated in Pl. XXXIII, *E–M*. Two additional graves were found closely associated with these but two feet deeper, or seven feet below the surface. The latter burials were in poorer condition than the former and possibly they were older. The rest of the ceremonial stones (Pl. XXXIII, *E–M*) were found in these two burials, *K* having been found on the left side of one of the skeletons. Arrow points (Pl. XXXIII, *A–D*) were also found with these skeletons. A large quantity of red ochre was found in all the burials.

A short distance to the east of this cemetery, located directly upon the bluff, there must have been an old camp site. About six years ago a small group of collectors excavated the whole southern end of the area and removed many large stone tools and quantities of potsherds.

A few other sites along the Merrimac may be briefly mentioned. Directly across the river from the confluence of Cohas Brook was a burial ground from which Indian skeletons have been removed (Fig. 41, *6*). One mile north of this burial ground on the east bank of the river is a site from which one collector secured over 1000 specimens. Other sites have been found on the west side of the Merrimace at Short Falls and at the point where the Piscataquog flows into the river (Fig. 41, *7*).

THE DICKEY PLAIN VILLAGE SITE

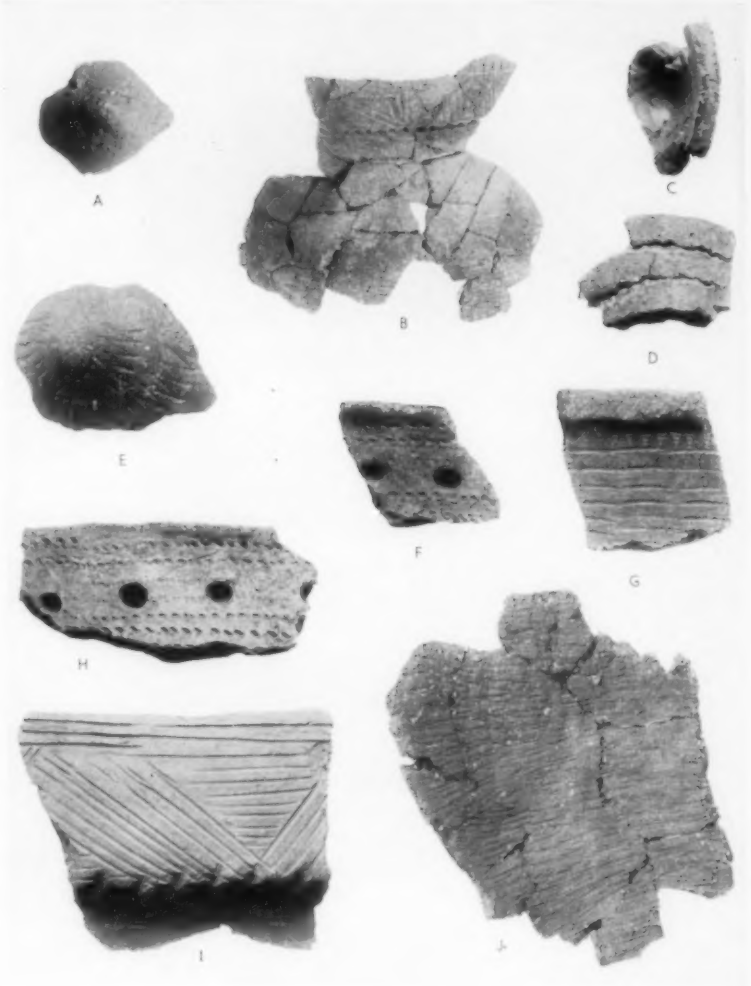
The banks of Cohas Brook, between the Merrimac River and Massabesic Lake, are strewn with Indian artifacts. The brook itself must have been important in aboriginal times because not only was it well stocked with fish but it was a traveled highway between the river and the lake. One concentration of artifacts is located on the north bank of the brook along which it extends for about one-half mile (Fig. 41, *8*). Cohas Avenue now crosses near the center of the site. The site is noteworthy because a cache was found there containing eighteen large arrow points, together with some of the material out of which they were fashioned. One of the most interesting specimens was a soapstone pot similar in type to the one illustrated in Pl. XXXIII, *Q*. The specimen illustrated, which is a particularly fine example of this type, was found in East Manchester some three miles from the Dickey Plain site. The pot is 10.5 inches long, 9.25 inches wide, and 4 inches high. It has four lug handles. The specimen is now on exhibition in the Manchester Historical Society.

Aside from this particular site, the area along Cohas Brook is noted because of the large number of small quartz arrow points, sometimes called "bird-points," which are to be found. Some of these are trianguloid in form with a straight or concave base; there are also many stemmed trianguloids. Notched arrow points appear to be rare and of even greater rarity are hafted scrapers. Tradition has it that the former abundance of passenger pigeons in this particular locality is responsible for the great number of arrow points. Other types of artifacts common along the banks of the brook are soapstone pots, hammerstones, axes, sinkers, plummets, smoothing stones, various stone ornaments and spearheads.

THE MASSABESIC LAKE VILLAGE SITES

Massabesic Lake, which is drained by Cohas Brook, is a relatively large body of water. It is constricted in the middle so that there are practically two ponds. There are many sites on this lake; suffice it to mention a few of the most important on the easterly body of water known as Front Pond.

The beach (Fig. 41, *9*) was the site of a large settlement. Many artifacts have been found here. To the east, along the north and east shores of Front Pond, evidences of occupation have been found at Severance and Preston beaches. (Fig. 41, *10*, *11*). The area near the mouth of Auburn Brook (Fig. 41, *12*) has been the source of the largest and best known collection from the vicinity of the Lake. This collection,



Pottery from the Manchester region, New Hampshire.

Fragment with hieroglyphic text, Piedras Negras, Guatemala.

which is housed in the library at Auburn, New Hampshire, is named in honor of Sebastian S. Griffin who assembled it.

The collection includes twenty-two pestles, twenty plummets, ten grooved stones, two bannerstones, an unfinished soapstone dish eight inches in diameter (Pl. XXXIII, *P*), grooved axes, chisels and numerous arrow points. The most distinctive object is a stone pendant (Pl. XXXIII, *R*), three and one-half inches in diameter, on which the outline of what appears to be a turtle is incised.

POTTERY FROM THE MANCHESTER REGION

Pottery is distributed throughout the Manchester region. For the most part, only sherds are found and, rarely, fragments of as much as one-quarter of a vessel may be fitted together. On the average, the pots are about twelve inches in diameter and some eighteen inches deep. The walls are about one-quarter of an inch thick. That some of the pots were of the conical bottomed variety, typical of New England may be seen from the sherds (Pl. XXXIV, *A*, *C*, *E*). The rims of these pots were made in shapes commonly found in New England. (Pl. XXXIV, *F*, *G*, *H*). Other pots were probably globular, having a constricted neck which was occasionally surmounted by a pointed collar (Pl. XXXIV, *B*, *I*). The clay was tempered with coarse sand and the pots, or at least some of them, were built by coiling (Pl. XXXIV, *C*, *D*).

The inside of one sherd in particular (Pl. XXXIV, *J*) suggests the possibility that pots were made over molds which had been wrapped with cord. Possibly the mold was a crude basket, the horizontal "splints" of which were cords.

Techniques of decoration were confined to incising the soft clay with variously shaped implements, or to pressing a variety of tools into the clay. Pointed or blunt-ended punches were used to make the common "punctate" marks. Also, cord-wrapped sticks or possibly just a bundle of cord, or perhaps netting, were used to modify or decorate the surface. Occasionally, the ends of the fingers were used in making some of the peculiar indentations found on the rims of some vessels.

Almost all of the rim fragments found in the Amoskeag region show that decorations were executed on the inside as well as on the outside. The inside decoration extends downward usually about one inch.

315 East High St.
Manchester, New Hampshire
February, 1941.

THE INSCRIPTION ON STELA 38, PIEDRAS NEGRAS, EL PETEN, GUATEMALA

E. Wyllys Andrews

IN CONNECTION with a reconnaissance of southwestern Campeche and Tabasco undertaken for the Carnegie Institution of Washington, the writer was able to make a brief visit to the ruins of Piedras Negras in the Department of Petén, Guatemala, in January, 1940.[1] At the time of this visit, he encountered a fragment with hieroglyphic text on the raised basal terrace at the corner of Structure K–5, close to but not in direct association with the fragments of Stela 38. As the fragment was unfamiliar, it was photographed on the offchance of being previously unrecorded. However, no measurements or drawings were made.

After return from the trip, it became evident that the text of this fragment had not been translated. Its probable relation to the nearby Stela 38 will be discussed at the end of this paper, but it is more convenient here to discuss the text as a separate unit.

The fragment contains at least parts of six glyph blocks, which we designate A1 to B3. The break occurred through the middle of blocks A1 and B1, removing any coefficients which may have been attached above these glyphs (see Pl. XXXV). The following is the glyphic evidence now discernible:

A1 —gone.

B1a—may have been a day sign cartouche.

B1b—may have been a month sign. Neither part of this declaration had a coefficient to the left, but there may have been one above, as on the other glyphs of this fragment.

A2a—is effaced, but seems not to have had a coefficient.

A2b—is a day sign cartouche on a trinal support with a clear coefficient of 9 above. Interior details are effaced.

B2 —is a secondary series, surely 11 kins, 11, 12, or 13 uinals. Kin coefficient is to the left, uinal coefficient above.

A3a—was probably the tun head, with a definite coefficient of either 3 or 4. 3 is much preferable.

A3b—is too eroded to see any detail, but seems not to have had a coefficient.

B3a—is a clear day sign cartouche with a trinal support and a quite clear coefficient of 4 above. No details are visible inside the cartouche.

B3b—is very probably the month sign. The coefficient is certainly 6, 7, 8, 9 or 10—the last being highly improbable. The glyph is composed of an eroded Cauac form at the bottom, with a ruined element between it and the coefficient above. The month, therefore, was almost certainly Chen, Yax, Zac, or Ceh. As double superfixes giving the form of the glyph under discussion may be found on all four of these months, little preference may be given, although the comb element of Yax would make it least preferable.

[1] Cf. Andrews, 1940, pp. 268–269.

Two possible situations connect these various declarations:

1. A2b + Secondary Series = B3
2. A2b − Secondary Series = B3

Of the total range of possibilities, only two schemes emerge from these variables:

1. 9 ? +4.13.11 = 4 ? 6,7,8 or 9 Chen, Yax, Zac or Ceh.
2. 9 ? −3.12.11 = 4 ? 6,7,8 or 9 Chen, Yax, Zac or Ceh.

Except on monuments with a large number of secondary series, there is a strong possibility that one of the termini of a secondary series date will also be a period ending date, usually the contemporaneous date of the monument itself. Such an assumption here (and we shall see later that it is more than justified) would imply that either the tzolkin declaration at A2b or the calendar round declaration at B3 corresponds to some period ending, which in either case would make the day Ahau, and which would give two possible sets of locations in the Initial Series:

A. If the last expression corresponds to the period ending there is but one possible position in cycle 9, 9,18.18.0.0. 4 Ahau 8 Chen, and the restored inscription would take one of the following forms:

1. 9.18.18. 0.0. 4 Ahau 8 Chen
   4.13.11. (subtract)
   9.18.13. 4. 9. 9 Muluc 2 Muan

2. 9.18.18. 0. 0. 4 Ahau 8 Chen
   3.12.11. (add)
   9.19. 1.12.11. 9 Chuen 19 Uo

B. If the first expression corresponds to the period ending, the original possibilities rise to a large number. Of the thirty-one tuns in Cycle 9 ending on 9 Ahau, only one may be connected to our terminal date by adding 4.13.11. Of these 31 tun endings, only two may be connected to the terminal date by subtracting 3.12.11. The three possibilities thus derived are:

3. 9. 2.15. 0. 0. 9 Ahau 3 Kayab
   4.13.11. (add)
   9. 2.19.13.11. 4 Chuen 9 Zac

4. 9. 9. 5. 0. 0. 9 Ahau 18 Uo
   3.12.11. (subtract)
   9. 9. 1. 5. 9. 4 Muluc 7 Chen

5. 9.12.10. 0. 0. 9 Ahau 18 Zotz
   3.12.11. (subtract)
   9.12. 6. 5. 9. 4 Muluc 7 Zac

Of the five possibilities, the last three have much more in their favor than the first two, as they are hotun endings. Furthermore, the abbreviation of the period ending date itself (probably declared in full elsewhere on the monument) is more common practice than the abbreviation of the odd date freshly derived by the secondary series. The probability is therefore much stronger that possibilities 3, 4, and 5 number among them the correct solution.

No. 3 is unsuitable for three reasons. First and most important, it is almost half a century earlier than any date known at the site, and would be almost a century and a quarter earlier than any other known hotun-marker in the Maya inscriptions. The tun coefficient, as we have seen, reads much better as 3 than 4. And finally, such a construction of the inscription would make the latest date 4.13.11. *beyond* the period ending date, which is not a common practice.

This leaves only solutions No. 4 and 5, between which there is not much choice on glyphic grounds. The month coefficient is 7 in both cases, and the month glyph may be read equally well Chen as Zac. There are, however, extraneous considerations which make it possible for us in all probability to give a definite place in the long count for the dates on this fragment.

Communication with Mr. Linton Satterthwaite of the Museum of the University of Pensylvania hs convinced me that this fragment is actually a part of Stela 38. Although not in immediate association with the fragments of the latter, it is located on the same basal terrace, and was found in an area which had been intensively excavated the year before. Mr. Satterthwaite has pointed out that if it had come from the actual fill of Structure K–5 and not been recognized as sculpture it would almost surely have been removed with other debris to the dump in cleaning up operations. Were it lying on the surface, there is little probability that only one small fragment of a stela of such date would be found in an area which had been so throughly examined. Finally, the actual arrangement of the fragments of Stela 38 in Morley's "Inscriptions of the Petén"[2] is unsatisfactory and invites modification.

The fragment under discussion in all probability is identical with a fragment found during excavation, but not recorded as containing a hieroglyphic text. For reasons too lengthy to discuss in detail, it probably fits above the lowest piece on the right side of the stela. It likewise seems probable that the fragment now occupying this position in Morley's reconstruction should be moved to fit between the two upper fragments on the left side of the monument. The state of erosion of the latter alone would make it more in place with the smooth middle fragments of the left side than between the two relatively well preserved bits on the right side.

According to Morley's numeration of the glyph blocks on Stela 38,[3] our fragment would enter below the piece containing blocks B6a and B6b. It would contain, in the same numeration of double blocks, B7a, B7b, B8a, B8b, B9a and B9b.

---

[2] Morley, 1938, Vol. 5, Pl. 125, *e* and *f*.

[3] *Ibid.*, Vol. 3, pp. 118–120.

Turning again from structural to glyphic evidence, we can now find a remarkable conformation between the text of the monument, and our fragment.

B6a and B6b record an incomplete secondary series of 2.3.12.?. Morley presumed a kin coefficient of 11, here, because the series would then lead back to the date 8 Muluc 2 Zip, which was recorded in four other texts at the site. We are now in a position to demonstrate that Morley's surmise was correct. The calendar round date 8 Muluc 2 Zip was probably recorded at B7b (B1 on our fragment). Then followed a redeclaration of the date 9 Ahau (9.12.10.0.0.) and a second secondary series of 3.12.11., leading back to 9.12.6.5.9. 4 Muluc 7 Zac. The latter was actually declared at B9b on our fragment (B3 in the summary on p. 364), and is precisely the second katun anniversary of the date defined by the first secondary series.

This situation finds curiously close parallels at other sites. At Copan, for example, there is great emphasis laid on the date 9.16.12.5.17. 6 Caban 10 Mol, which is to be found at least eight times in the inscriptions at that site. Altar T, Fragment E, and probably Stela 8 at the same site, record the date 9.17.12.5.17. 4 Caban 10 Zip, the first Katun anniversary of 6 Caban 10 Mol.[4] At nearby Quirigua, the date 9.14.13.4.17. 12 Caban 5 Kayab is recorded on Stelae J, F, and E, and on Zoömorph G. The Initial Series of Stela D at the same site has as its Initial Series 9.16.13.4.17. 8 Caban 5 Yaxkin—the second katun anniversary of 12 Caban 5 Kayab.[5]

The earliest of both these pairs of dates played important roles in the theory of determinants. Teeple[6] concluded that 9.16.12.5.17. 6 Caban 10 Mol was the determinant for the day 18 Cumhu at 9.17.0.0.0., i.e., that at 9.16.12.5.17., the day 18 Cumhu occupied the position in the tropical year held by the day 10 Mol at the inauguration of the Calendar some four millenia before. Thompson has stated that the date 5 Kayab is the determinant of 13 Yax at 9.15.0.0.0.[7] Once such long-range calculations had been perfected to the satisfaction of the astronomers of the day, it is easy to see how, in the years following, the necessary minor corrections could be made by merely noting the time which had elapsed since these major determinant dates.

If the theory of determinants is to be accepted, we have precisely the same situation with our Piedras Negras dates. 9.10.6.5.9. 8 Muluc

---

[4] Morley, 1920, pp. 344–345, etc.

[5] Morley, 1938, Vol. 3. [6] Teeple, 1931, pp. 72–73.

[7] Thompson, 1932, pp. 371–376, etc. It is suggested here that the second katun anniversary of 12 Caban 5 Kayab might itself have been a determinant.

2 Zip is the determinant for 8 Ceh on which ended Katun 11,[8] i.e., 8 Ceh at 9.11.0.0.0. occupied the same position in the tropical year that 2 Zip occupied in Cycle 13. The importance of this determinant is stressed by its frequent appearance in the Piedras Negras texts. Stela 38 has as its Initial Series the contemporaneous date, 9.12.10.0.0. 9 Ahau 18 Zotz. We are then informed that 2.3.12.11. days have passed since the determinant 8 Muluc 2 Zip, that the second katun anniversary of this determinant at 9.12.6.5.9. was a day 4 Muluc 7 Zac, and that the latter date was distant 3.12.11 from the Initial Series. The text closes with an abbrieviated repetition of the contemporaneous date of the monument:

Left Side:	A1–A7a	—I.S. 9.12.10.0.0. 9 Ahau 18 Zotz.
Right Side:	B3a	
	B3b	—end of a tun.
	B6a–b	— 2. 3.12.11. (subtract)
	B7b	—(9. 10. 6. 5. 9.) 8 Muluc 2 Zip
	B8a	—(9. 12.10. 0. 0.) 9 Ahau (18 Zotz)
	B8b–B9a	— 3.12.11. (subtract)
	B9b	—(9. 12. 6. 5. 9.) 4 Muluc 7 Zac
	B12b	—(9. 12.10. 0. 0.) 9 Ahau (18 Zotz)
	B12a	—end of a tun.

BIBLIOGRAPHY

ANDREWS, E. WYLLYS
1940. "Exploration in southwestern Campeche, Tabasco, and the Department of Petén." *Carnegie Institution of Washington, Yearbook 39*, pp. 268–269.

MORLEY, SYLVANUS G.
1920. *The Inscriptions at Copan*. Carnegie Institution of Washington, No. 219.
1938. *The Inscriptions of Petén*. Carnegie Institution of Washington, No. 437.

TEEPLE, JOHN E.
1931. "Maya Astronomy." Carnegie Institution of Washington, *Contributions North American Archaeology*, No. 2. Vol. I, pp. 29–116.

THOMPSON, J. ERIC
1932. *The Solar Year of the Mayas at Quirigua*. Field Museum of Natural History, Anthropology Series, Vol. 17, No. 4.

Carnegie Institution
Cambridge, Massachusetts
February, 1941

[8] Teeple, 1931, p. 79, table 7.

GEOGRAPHICAL DIFFERENTIATION OF NEW JERSEY ARCHAEOLOGICAL MATERIAL INFERRED FROM PRIVATE COLLECTIONS[1]

NATHANIEL KNOWLES

THE essentially surface nature of Eastern Woodlands sites has invited the accumulation of private collections. Likewise, in densely populated areas such as New Jersey and adjacent states, many sites have either been destroyed by building operations or have been subjected to repeated cultivation. As a result, an enormous quantity of archaeological material has been lost to scientific excavation. While archaeologists have realized that intensive collecting by private individuals has always followed the plow, little has been done but deplore and ignore this activity. In consequence of this attitude, there is a tendency to assume that the contents of excavated sites represent the range of aboriginal culture, especially when cultivation has not been practiced for several decades. Furthermore, the enormous quantity of material in collections has not been utilized to supplement the archaeological data obtained from excavations.

The intensity of collection work carried on over a long period of years by individuals may be illustrated by the situation in New Jersey, which should not differ to any great degree from that in adjacent states. There is practically no suspected locality of Indian occupation which is not under continuous surveillance by collectors. An inventory has been compiled of collections now either in the possession of individuals or deposited in various small local historical societies and museums. This work is far from completed on known collections, and full coverage would be impossible as many can never be located. Two hundred and ninety collections comprising over 165,000 artifacts have been classified. These do not include the larger collections, some of which contain several hundred thousand artifacts each, presumably from New Jersey, nor collections of New Jersey material held outside the State by private individuals and museums such as the American Museum of Natural History, Peabody Museum of Harvard University and the University Museum of Philadelphia. When it is remembered that some thirty-nine

[1] Assistance in the preparation of this paper was furnished by the personnel of Work Projects Administration, Official Project No. 165–1–22–26. The methodology employed in inventorying collections was set up by Dr. Dorothy Cross and supervised by her, Dr. Eugene Golomshtok, Dr. Allan Smith, and the writer. The work was made possible by the courtesy and cooperation of the individuals who allowed their private collections to be studied.

New Jersey excavations,[2] excluding the Abbott Farm, have yielded less than 11,000 artifacts, the significance of the enormous quantity of collected material both as affecting the contents of any particular site and for the general problems of New Jersey archaeology should be clear. While the value of collections is admittedly slight compared to that of artifacts recovered from excavations, any use which can be made of this tremendous volume of material to supplement the relatively small amount of scientifically excavated data should be appreciated and it should be utilized as far as practicable.

Two hundred and twenty-four of these collections, containing a total of 94,347 artifacts, have been chosen for analysis. Selection has been guided by the necessity of eliminating, in so far as possible, the sources of error inherent in using collection data. Therefore, comparatively small collections made personally by local farmers or residents of small towns have been included, while those containing a heterogeneous mass of artifacts of unknown or doubtful origin have been eliminated. This selection is of course somewhat arbitrary and depends upon personal judgment as to the reliability of the owner. Nevertheless, there would seem to be reasonable justification for believing that the artifacts under consideration here were found within the counties indicated and do not include any purchases. As a partial check on this, it should be noted that no types not occurring in excavations in the State appear in the collections. Furthermore, since this study is concerned with proportional quantities of the more usual artifacts, rather than with "collectors' items," foreign material would not be particularly disturbing.

One probable source of error arising from the selective activities of collectors is pertinent if collections are to be compared with excavation material. Lack of amateur interest in crude and broken points, hammerstones and similar objects would tend to vitiate such comparisons but as there should not be any regional differences between collectors' preferences, internal collection comparisons should be valid.

The material under consideration has been assembled for three regions of the State:

Northern New Jersey collections (Hunterdon, Somerset, Union, Warren, Sussex, Passaic, Morris, Bergen, Essex and Hudson Counties): 19,486 artifacts. These counties are located between the Delaware and Hudson Rivers and north of Raritan Bay. The terrain, which is quite rugged, is an extention of the mountainous regions of lower New York and northeastern Pennsylvania. Much of the land is forested and rock

[2] References to New Jersey excavations are based upon the work of the W.P.A. Indian Site Survey, Dorothy Cross, *Archaeology of New Jersey*, Vol. I, Trenton, 1941.

shelters are found. "Iroquoian" influences would be expected over most of the area.

2. Central New Jersey collections (Camden, Burlington, Ocean, Mercer, Middlesex, Monmouth Counties): 26,788 artifacts. The terrain is rather flat piedmont and coastal plain and is intensively cultivated.

3. Southern New Jersey collections (Gloucester, Salem, Cumberland, Cape May, Atlantic Counties): 48,073 artifacts. The terrain is the flat coastal plain with large sections included in the pine barrens. The streams are vey shallow with a flat gradient, and are tidal for a great part of their length.

DISTRIBUTIONS

Projectile points decidedly predominate in all collections, accounting for 83% of the total artifacts in the northern and central regions and slightly more, 89%, in the south. Larger points, those over $2\frac{3}{4}''$ being arbitrarily classified as spear points, comprise on 8% of the total projectile points in the north and south, increasing to 13% in the central region where they are probably correlated with a greater use of argillaceous materials (shale and argillite).

Table 1 shows the relative frequency with which various materials are utilized for projectile points. In the central region, argillaceous materials, occurring plentifully in natural outcrops, are preferred. In the north, flinty materials (flint, jasper, chert and chalcedony) predominate, while in the south these and quartz and quartzite, particularly the local "Cohansey quartzite," are more favored.

Table 2 gives the relative preferences for various types of projectile points. Crude, stemmed types are preferred in all regions although slightly less emphasized in the north than elsewhere. Triangular points decrease somewhat from north to south but the amount is probably not significant. The finer, notched points and the convex based points present the most outstanding variations in distribution. The notched type decreases rapidly from north to south while the convex based type reverses the trend and increases from north to south.

Table 3 shows the use of argillaceous materials by types. This is the preferred material for the larger points and also for the small, stemmed, lozenge and leaf shaped points in the central region. Notched, triangular and convex based points are preferably made of the harder materials. In general, the proportionately greater use of argillaceous materials in the central region is confirmed for each type but there are certain exceptions: there is (1) as great a use of argillaceous materials in the north for triangular points as in the central region; (2) less relative use of argillaceous materials for notched points in the central region than either the

TABLE 1.—NEW JERSEY PROJECTILE POINTS—PER CENT BY MATERIALS

	Northern	*Central*	*Southern*
Argillaceous	33	48	32
Flinty	61	36	43
Quartz	3	10	15
Quartzite	3	6	10
Total	100	100	100

TABLE 2.—TYPES OF PROJECTILE POINTS—PER CENT OF TOTAL

	Northern	*Central*	*Southern*
Arrows and Spears			
Triangular	23	19	18
Stemmed	37	44	43
Notched	29	19	15
Lozenge	1	5	5
Leaf	6	6	6
Convex-base	4	7	13
Total	100	100	100

TABLE 3.—PER CENT OF ARTIFACTS MADE FROM ARGILLACEOUS MATERIALS

	Northern	*Central*	*Southern*
Arrows			
Triangular	15	15	5
Stemmed	40	64	31
Notched	27	15	19
Lozenge	48	50	48
Leaf	36	61	60
Convex-base	25	22	48
Spears			
Triangular	72	71	51
Stemmed	67	80	55
Notched	61	72	36
Leaf	73	83	63
Convex base	54	86	57
Total Points	33	48	32
Scrapers	6	13	3
Drills	19	44	26

TABLE 4.—GROUND STONE IMPLEMENTS BY TYPES—PER CENT OF TOTAL

	Northern	*Central*	*Southern*
Axe	47	84	71
Celt	48	14	14
Gouge	2	1	13
Adz	3	1	2
Total	100	100	100

TABLE 5.—RELATIVE QUANTITIES OF ARTIFACTS—BASED ON NORTHERN NEW JERSEY AS 100

	Northern	*Central*	*Southern*
Hoe-Spade	100	26	4
Net Sinker	100	38	10
Shaft Straightener	100	67	29
Bannerstone	100	52	21

north or south; and (3) preference for argillaceous materials for leaf shaped and convex base points in the south.

Scrapers are almost exclusively made of the harder materials while drills are often of shale and argillite (Table 3). Regional variations are consistent with that for points. The only unusual situation in the distribution of scrapers is the increasing preference for the small "thumb" type southward. These account for 25% of the total scrapers in the north, 38% in the central region and 56% in the south.

The distribution of axes, celts, gouges and adzes is interesting (Table 4.) Celts are relatively more preferred in the north, representing 48% of these implements compared with 14% in the central and southern regions. In the central region, axes account for 84% of the total compared with 47% in the north and 71% in the south. Gouges, except for occasional specimens, are confined to the southern region where they comprise 13% of the total. Adzes are scarce throughout, accounting for less than 3% in all regions. Therefore, the ax is by far the preferred implement in the central region, being replaced to a great extent by the celt in the north and to a somewhat lesser extent by the gouge in the south. In all regions, about 90% of these implements are made of sandstone, the balance being argillaceous materials, quartz, quartzites and flints.

Certain artifacts which decrease consistently from north to south are shown in Table 5 which indicates the relative quantities based upon the northern region as 100. Hoes and spades are decidedly more preferred in the north than elsewhere. In the central region, relatively only about one-quarter as many are found, and they are practically absent in the south. Likewise less than half as many net sinkers are found in the central region as in the north, and very few in the south. Bannerstones, of which there are 191, also decrease in preference from north to south as do shaft straighteners.

Several other regional differences occur. Hammerstones are proportionately less numerous in the south than elsewhere. The south similarly lacks the shallow stone mortar or anvil compared to the central region. The north, likewise, has fewer of these than does the central region. Pestles in both the north and south are relatively only one-third as plentiful as in the central region. Steatite bowls are not found in either the north or south.

No significant regional differences are apparent in the distribution of ornaments, rubbing stones, whetstones and sinew stones, nor in plummets, pipes, and bone tools which are extremely rare. Almost no semilunar knives occur in these collections, five being in the northern, two in the central and none in the southern area.

Shell and copper artifacts are absent as are "bird" and "boat" stones.

Unfortunately, pottery, except for an occasional reconstructed pot, is not included in the collections.

SUMMARY

The archaeological material contained in these selected private collections indicates a basic uniformity of culture throughout the State. Regional differences can be defined only in terms of the relative quantities of the various types and materials.

The availability of materials undoubtedly contributed to the spatial differences in the proportions of each kind utilized. Flinty materials, particularly larger nodules, are more prevalent in the north, extensive outcrops of shale and argillite occur in the central region, while pebbles of quartz and the flinty materials are available from the glacial outwash gravels in the south. A variety of quartzite known as "Cohansey," which occurs only in Cumberland County, was also extensively used in the south for points. That the choice of material was, however, not limited to the local supply is shown by the quite prevalent use of argillaceous materials in the south where none are locally available. This seems to imply a movement into the region from the central part of the State where a preference for their use had been acquired.

Caches of shale and argillite found in excavations in this area confirm this preference and indicate that the raw material, not the finished artifact, was imported.

The decreasing number of hoes, net sinkers and shaft straighteners from north to south may also be explained on the basis of availability of the large pieces of sandstone chiefly used for them. The rather infrequent occurrence of hammerstones, mortar-anvils and pestles in the south was probably similarly limited. This would not hold in the north, where mortar-anvils and pestles are less prevalent than in the central region but it may indicate use of wood.

However, ecological factors may also have affected some of these distributions. Fishing techniques suitable to the sluggish, shallow, tidal streams of the south may not have utilized stone net sinkers adapted to the deep, rapid streams and rivers in the north. The extremely friable soil of the south may have been worked with wooden implements instead of stone hoes which would be more effective in the heavy clays to the north.

While typology is to some extent dependent on the presence of satisfactorily workable materials this does not sufficiently account for the differences in distribution of notched, convex based and triangular

points. The prevalence of triangular points is quite uniform, and if this type originated outside the State it had become well diffused.

In the absence of chronological data in collection material the direction of movement of notched and convex based points cannot be determined. It is obvious that it is equally valid to explain the distribution of notched points either as diffusing from the north or as being replaced in the south. The same may be said of "thumb" scrapers.

The relative proportions of ground stone implements are not dependent upon sources of raw materials. If the grooved axe is typically a coastal Algonkian tool it would seem to have been replaced to a great degree by the celt in the north. The significance of the gouge being almost entirely confined to the south is not clear.

The diffusion of the semi-lunar knife is indicated from north to south as would be expected, although based on very few specimens. A similar diffusion of bannerstones is likewise indicated.

The absence of steatite bowls in the south seems to confirm the assumption that there was little contact across the Delaware Bay to the steatite quarries of southeastern Pennsylvania.

More complete interpretation of the regional variations which have been outlined awaits the results of excavations with, if possible, chronological data. There is every reason to believe, however, that studies of carefully selected private collections can define problems and contribute valuable supplementary evidence to conclusions based on the quantitatively poorer material obtained from excavations.

University of Pennsylvania
Philadelphia, Pennsylvania
February, 1941

A DELIMITATION OF THE AREA AND SOME OF THE ARCHAEOLOGY OF THE SULA-JICAQUE INDIANS OF HONDURAS

DORIS STONE

THE word "Jicaque" or "Xicaque"[1] appears repeatedly in the literature of Honduras. It is a term that came into being through the Spanish use of Mexican interpreters.[2] The Mexicans, both those brought to Honduras by Cortez and his followers, and those whom the Spaniards found colonizing the country,[3] spoke some form of their own language which the Spaniards, freshly arrived from Mexico, understood.[4] The Central American speech, on the other hand, naturally was foreign. The word "Xicaque" or "Jicaque" in Mexican means the "former inhabitants"[5] and was applied to the people upon whom the Mexican colonists were encroaching or whom the newly arrived Spaniards were conquering.

In the last years of the Conquest, and during the Colonial period, the word "Jicaque" appears to have been a "termo provincial"[6] to cover all non-Christian Indians. And still in the Colonial period, when the Protestant English were employing every method available for a footing in Catholic Spanish America and inciting Indians to torment and to plunder Spanish colonies, the term "Jicaque" first started on the general "household" usage it has today. This is to say, "Jicaque" was and is used as a bugbear to frighten children into good behavior much as the goblin is used in English speaking communities. It is difficult in literature to find the southwestern limits of the use of this word. Vasquez[7] frequently employs "Xicaque" when he talks of the Olancho region. The term is also applied by various writers to Indians on the northern coast and in what can be considered more or less the middle eastern portion of Honduras, namely, from the region now occupied by the department of El Pariso north to the sea and westward through the Ulua basin. Espino,[8] writing in 1676, definitely places the Jicaque in the Valley of Jamastran. Anguiano,[9] in 1798, sets a southwestern limit of Tencoa,

[1] Either spelling is correct. "Xicaque" is the older form, but "Jicaque" is the form preferred by linguists. [2] Cortes, 1908; Stone, 1940 *b*, p. 389.

[3] Cortes, 1908, Vol. 2, p. 317; Strong, Kidder and Paul, 1938, p. 118; Stone, 1940*b*, p. 389.

[4] Cortes, 1908, Vol. 2, p. 318. It should be noticed that in Honduras Cortes found the *Culua* language spoken. This was also the language spoken in parts of Mexico.

[5] Vasquez, 1716, p. 411; Molina, 1880, Pt. 2, Folio 19 verso; Stone, 1940*b*, p. 389.

[6] Vasquez, 1716, lib. 5, p. 408; Anguiano, 1908, p. 390.

[7] Vasquez, 1716, p. 225. [8] Espino, 1908, p. 380.

[9] Anguiano, 1908, p. 390.

which is near the present site of Santa Barbara. And Brinton[10] puts the Jicaque on the Rio Sulaco and the Rio Chaloma, the latter in the Ulua Plain. In none of the documents known to the writer, however, does the word "Jicaque" appear in other than the sections mentioned above. "Jicaque," at the very start then, is spread over a large area, and presents a problem of terminology.

There is yet another side to this problem which places it more distinctly in the field of the linguist. This is the question of language. Over the broad area assigned by the chroniclers, or in which the Jicaque are located in the early reports, only one relatively small portion is designated by the linguists as being "Jicaque" in speech. This is the mountain area included in the present department of Yoro, the region of the Rio Lean in the department of Atlantida, and the Sula Plain. It is recognized that the Jicaque of Jamastran are of a different tongue, and the language of the Jicaque of Olancho is opened to controversy. Lehmann has even gone so far as to distinguish between what he calls "the Jicaque" and the "true Jicaque,"[11] a term he applies to the inhabitants of the Sula-Yoro-Lean section. The writer, however, prefers the term "Sula-Jicaque" as definitely placing these people in a given area, and separating them from the great mass of "Jicaque" who appear in the early literature all over the northern and northeastern territory of present-day Honduras. The use of the term "Sula-Jicaque" is backed by the use of the name "Sula"[12] for certain Indians who inhabited the region which both linguistically and archaeologically is in part "true Jicaque."

Linguistically, even the "true" or "Sula" Jicaque open a controversial subject. It is not within the scope of this paper to enter too deeply into the field of linguistics. Suffice it to say that Lehmann[13] sees a Mixe-Maya relationship, but contradicts himself when he places the Jicaque in the same table under the Arawak.[14] Sapir[15] holds they are fundamentally of Penutian stock, while Schuller[16] thinks that they offer strong Maya-Quiche, Carib and Arawak affinities, and finally Mason[17] and Johnson[18] place the Jicaque under the terms "unaffiliated" and "unclassified."

In order to delimit the country of the Sula-Jicaque, it is necessary to use the available historical documents together with the works of later writers, and to combine this information with the findings of the archaeologist within this area. Vasquez contains one of the first allusions to Sula-Jicaque territory when he recounts the founding of Luquiqui by

---

[10] Brinton, 1901, p. 161. [11] Lehmann, 1920, b.2, p. 631.
[12] *Doc. Ineditos de Indias*, 1870, t.2, p. 27. [13] Lehmann, 1920, b.2, p. 788.
[14] *Ibid.*, b.1, pp. 57–68. [15] Sapir, 1929. [16] Schuller, 1928, pp. 26, 31, 32.
[17] Mason, 1940, p. 74. [18] Johnson, 1940, p. 113.

Fr. Melchor Lopez in 1695–1698.[19] The site is still shown on the maps of Honduras, about a league and a half southeast of the town of Yorito. Luis Diez Navarro, in 1745, assigns the river and mountains of Mulia and Lean to the Sula-Jicaque, and adds: ". . . from the Rio de Ulua to the port of Truxillo, including more than 40 leagues of land within (i.e., back from the sea) is inhabited by Indians who are called Xicaque. . . ."[20]

Anguiano's report,[21] written in 1798, includes the mission of Luquiqui and adds three sites to our list of Sula-Jicaque habitations, namely, San José de Guaima, Nuestra Senora de Candelaria[22] and La Cadena or Cangelica.[23] Anguiano urges the king of Spain to form a mission at Cangelica which was apparently a Sula-Jicaque settlement or post.

Pelaez, in 1852, broadens our conception of the Sula-Jicaque area when he places the northern limits of these people ". . . within the region of the Rio de Ulua, between Trujillo and Omoa."[24] Lehmann mentions a report by Edwards[25] which names the Sula-Jicaque in Santa Barbara. The original vocabulary collected by Amory Edwards is at present in the library of the Museum of the University of Pennsylvania. The manuscript does not state that the vocabulary is from Santa Barbara, although Lehmann may have found out through personal channels where Edwards collected his material. Brinton, as we have stated before, locates them on the Rio Sulaco and the Rio Chaloma.[26]

We have, then, a number of sites historically Sula-Jicaque. Part of this territory is the Sula Valley, a mixed region where a variety of influences and cultures were amalgamated and co-existent.[27] Within these cultures, we can separate the Maya, the Paya, the Mexican, and to a certain degree the Lenca traits.[28] There remain at least two elements prevalent in the Sula Plain. One is what is called "Playa de los Muertos,"[29] and the other, which has for the most part been ignored or termed "archaic" by archaeologists, is the Sula-Jicaque. The only reference to a Sula-Jicaque trait was made by Strong, Kidder, and Paul, who attribute what they term "Bold Geometric" elements in Ulua polychrome pottery to these people.[30] On the other hand, they have made no distinction between certain simple geometric types and what they call "Ulua

---

[19] Vásquez, 1716, p. 225.

[20] Navarro, 1850, p. 50 " . . . desde es Rio de Ulua hasta el puerto de Truxillo, con más de 40 leaguas la tierra adentro, están habitadas de indios que llaman Xicaques. . . ."

[21] Anguiano, 1908, pp. 389–399. [22] *Ibid.*, p. 392. [23] *Ibid.*, p. 395.

[24] Pelaez, 1852, t. III, p. 219. [25] Lehmann, 1920, b.2, p. 634; Edwards, N.D.

[26] Brinton, 1901, p. 161. [27] Stone, 1940*b*. [28] Stone, 1941.

[29] Popenoe, 1934, pp. 61–85; Vaillant, 1934, pp. 87–97.

[30] Strong, Kidder, and Paul, 1938, p. 123.

Bichrome."[31] The traits composing the Playa de los Muertos complex are easily defined, although their exact relationship to the better known cultures of Central America remains to be worked out.[32] The "archaic" or primitive elements need also to be designated to a particular group.

In addition to this confused classification and correlation of the types mentioned above, the Sula Plain and the region of the Ulua River is the scene of so many culture pushes, that assigning a particular site in this area to a certain people is apt to prove dangerous. Even Naco, in the adjoining Chamelecon Valley, although predominately Mexican, yielded a number of varied traits.[33] Therefore, with a culture which is still undefined, such as Sula-Jicaque, it is necessary to examine more isolated locations, such as those listed earlier, and to use sites where history itself points definitely to the Sula-Jicaque alone as the former inhabitants.

In the beginning, we cannot hope for too large a reward as the result of such an investigation. Concerning the Sula-Jicaque themselves we know very little. The reports of the missionaries sent to convert them point to the fact that they were not urban people.[34] They preferred to live in isolated units on the tops of hillocks or even mountains in heavily wooded areas. There are, however, certain definitely Sula-Jicaque sites which the writer visited in March, 1940, and where a meager number of ceramic specimens were obtained.

There are several important observations in connection with Sula-Jicaque sites which should be made at the very start of any investigation. One is that quite often, right in the midst of country and settlements which are historically Sula-Jicaque, there are two types of mounds. The first is of unworked stone, and is smaller and apparently of greater age than the second type, which is of dirt with stone used only as a medium of protection or support to hold the earth in place against floods and heavy rainfall. The latter is by far the more common, and constitutes the construction found in every historic Sula-Jicaque site visited, even when, as we shall see presently, there were stone mounds. Only occasionally in the stone mounds are sherds used as a filler to hold the mound in shape. Such employment of potsherds is usual in most of the Sula-Ulua region.[35] Naturally, there is no necessity for filler in the earth mounds. The height of the Sula-Jicaque earthen mound appears

---

[31] E.g., Strong, Kidder and Paul, 1938, Pl. 9, Figs. a, b, c, e, are called "various sherds" and have not been separated into a distinct group. The writer would classify these as Sula-Jicaque.

[32] Vaillant, 1934, pp. 87–97.

[33] Strong, Kidder and Paul, 1938.

[34] See Col. Doc. Costa Rica X, 1907, pp. 261–262; Lehmann, 1920, b.2, p. 633.

[35] Stone, 1941.

to depend upon the average flood height of whatever river happens to be in the vicinity.

Cangelica, on the Rio Lean, is today one of the largest of the former Sula-Jicaque settlements, and can well serve as a type site for all the Sula-Jicaque area. It is marked by a large group of earth mounds. Surrounding, and in fact on top of some of them, are the ranchos of Hondurans who have moved into this rich valley. Also in the vicinity are a few *milpas* or corn fields belonging to Sula-Jicaque Indians who still occasionally use this region despite the gradual encroachment of other peoples. Indeed, a little farther up the river is the "town" of La Florida, if a name such as "town" can be given to any Sula-Jicaque habitat. The present-day Indians in certain ways seem to keep rather closely to the habits of the past. One of these customs is abhorrence of close community life and a preference for living on scattered hillocks.

The earthen mounds at Cangelica are without any set shape. Some are rounded like small knolls, while others are stretched out in an irregular elongated mass. The site of the old mission is about a kilometer down the river from the large group of mounds. Nothing remains of the mission itself, but in the *guamil* or heavy growth towards the west is an old, stone, rectangular mound about three feet high. The ruins of what might have been two side walls run eastward from either end. This seems to have been the only stone mound near by, although the bush is so thick that others might well be hidden further westward under the vines. No specimens were available from this stone mound.

From the earthen group and from the adjacent Rio Aloa and Rio Texiguet came the examples in Fig. 42 and Fig. 43, *a–g*, *i–k*.[36] Several incised sherds, some with hatching, others with slanting or straight parallel lines, and some with a half punctate pattern were dug or picked up from the dwelling mounds. Most of the pottery was of an unpainted reddish clay. There are two rim types, one straight (Fig. 42, *h*) and the other with a more pronounced flare (Fig. 42, *i*). The flare of other rims varies between these two (Fig. 42, *c–k*).

Fig. 42, *b–b′* shows a rounded vessel shape which was apparently very popular with the Sula-Jicaque. This type has been found at the same sites with loop handles. There are also shallow dishes with an apron or ring base, as that in Fig. 44, *f*, from Subirana. Fig. 42, *a*, *l–n*, and Fig. 43, *k*, are handles, the most usual type being the simple loop. Fig. 43, *k*, differs from similar handles found in historical Lenca regions in the absence of colored bands or paint in connection with the raised

[36] Mr. and Mrs. Floyd Avery of Puerto Arturo, Honduras, collected the Rio Aloa specimens.

heads. Occasionally, a nodule or an attempt at a raised monkey head, a raised rat-bat head, a head in a vertical position (Fig. 43, *j*), or a protruding crude animal face on the lip of the vessel (Fig. 43, *f*), is used instead of a handle. One head (Fig. 43, *i*) is broken in such a manner that we cannot say wheter it was a lug or a figurine. The handle shown in Fig. 42, *m*, is of interest because of the incised line on the bottom, either intended to be a portrayal of an animal's snout or merely another example of the fondness of the Sula-Jicaque for incised decoration. Of the pot legs (Fig. 42, *o–q*), Fig. 42, *o*, is the least common. Typical Sula-

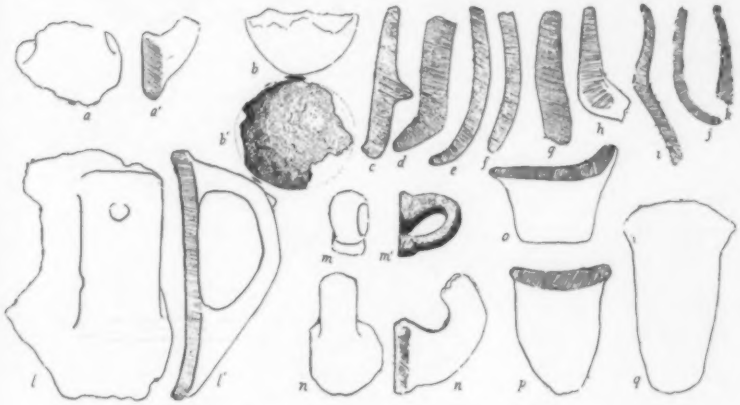


FIG. 42.—Pottery, Sula-Jicaque Indians, Honduras.

Jicaque designs are shown in Fig. 43 *b*, *g*, and *h*. All are simple incised or punctate patterns.

Only one bit of painted ware appeared in Cangelica, but this was so badly faded that nothing could be distinguished save some red and black horizontal lines.

Subirana, another large Sula-Jicaque site was formerly called "Pueblo Quemado,"[37] but was renamed Subirana after the missionary who lived and died among the Sula-Jicaque in the late nineteenth century. Its earlier or Indian name is not known today. The "town" is situated on a high plain above, and south of, the Cuyamapa Valley. The surrounding hills give to the site the impression of a large rectangular meadow. There are a few scattered houses with little fenced-in patios containing a small number of banana trees and some corn, and an open spread for the north-south sweep of wind. It is a region of high, tiny

[37] Antuñez, C., 1937, p. 90.

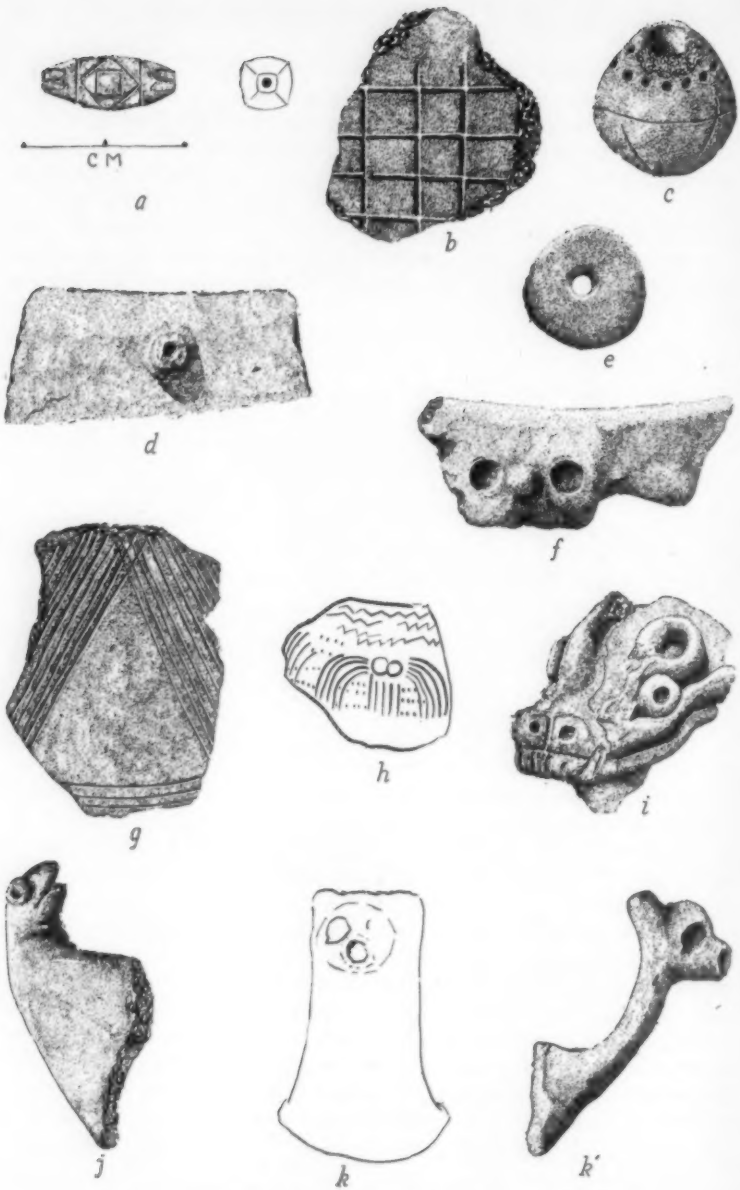


FIG. 43.—Artifacts and pottery, Sula-Jicaque Indians, Honduras.

mesas, and an abundance of water. The houses are widely separated with only a few Hondurans living in the settlement. The Sula-Jicaque, for the most part, have their homes on near-by isolated hillocks. Nevertheless, in the savannah proper, are a group of about six mounds like the dwelling mounds of Cangelica. Connected with Subirana, however, and what archaeologically speaking should be classed as part of the community, is the Hacienda de la Standard. Here, still in the same savannah, are approximately eight mounds. These are larger, and are of earth with a few stones as support to the dirt. About three of the mounds might be called rectangular in shape. In one is a large trench through the center, made by Wolfgang von Hagen. There was no trace of sherds

FIG. 44.—Artifacts from Subirana (von Hagen Collection, Columbia University).

in the construction. The writer found only one piece of obsidian at the site. The objects from here are similar to those from the Rio Lean area. Some of the pieces from the von Hagen collection, now in Columbia University, are featured in Figs. 44 and 45.[38] The specimen in Fig. 45 appears to have been the top of a clay vessel. It is particularly interesting to notice the raised crest which is reminiscent of the crest on a "fire-burner" from the Sula-Ulua plain.[39] Also of interest is the punctate design, a favorite decorative technique of the Sula-Jicaque.

The Indian portion of Luquiqui is also a hillock town, with the same paucity of material as most Sula-Jicaque sites. The few sherds from the vicinity had the usual simple incised or crossed-hatched patterns.

[38] The collection was made available to the writer through the kindness of Professor Wm. Duncan Strong of Columbia University. [39] Stone, 1941, Fig. 98.

Further south in the department of Yoro, almost on the border of the department of Comayagua, is the town of Sulaco. Sulaco as a community has a long past. Unfortunately, no historic reference to Sulaco is known to the writer except a brief mention by Bernal Diaz del Castillo,[40] who remembers the place because during a battle with the inhabitants he lost his horse. A group of mounds lies about a league north of the present town, on the eastern side of the camino real. These are situated in the valley proper. Over eleven mounds were cleared and stood high and bare in an open field. The mounds themselves are of dirt, with stones used only when it was necessary to keep the dirt in place. The average height ranges from three to fifteen feet, while the tallest mound is between twenty-five and thirty feet. There does not appear to have been any definite arrangement of mounds around

FIG. 45.—Clay vessel top (?) from Subirana (von Hagen Collection, Columbia University). *a*. Right side up. *b*. Upside down.

plazas, nor the use of sherds in the mound construction, despite the fact that sherds abound on the surface of the entire area. It is notable that pieces definitely akin to those from historic Sula-Jicaque sites are found in quantity at Sulaco. This adds archaeological evidence to the placing by Brinton of these people in the Sulaco Valley.

Sulaco, however, must have been a mixed site. Interspersed with the typical Sula-Jicaque sherds are polychrome pieces with conventionalized designs. Several important features also differ from typical Sula-Jicaque settlements: the size of the mounds, the general location, the plan of the site in a river valley removed from surrounding hillocks, and the fact that many of the polychrome sherds are reminiscent of the Mexican rather than the Sula-Jicaque. Ceramics similar in feeling have

[40] Diaz del Castillo, 1904, pp. 503, 505.

been found near Naco. When we take into consideration the fact that Sulaco is a rich region, and is situated on one of the most important and ancient routes inland from the coast, it would not be surprising if a Mexican trading group had settled here and mixed with the "Jicaque" or "former inhabitants" of the area. At present, however, we cannot say anything more definite in connection with Sulaco than that here is a settlement showing both Sula-Jicaque and "other" influences in the ceramics, and a decidedly non-Sula-Jicaque mound formation.

Another site in Sula-Jicaque country, but without historical affiliation, is a cave near San Nicolás in the department of Santa Barbara. The floor of this cave, beginning just beyond the mouth, was literally covered with sherds for almost five hundred yards. All were grey monochrome of the same type as Fig. 43, *c*, *g*, and *h*. A variety of crudely made, small animal heads were also used as decorations. The principal characteristic of this ware, however, is the simple incised and punctate design. This may represent an earlier example of Sula-Jicaque ware than the specimens from the other sites mentioned, but an actual comparison of all the sherds of this class with the sherds from historical Sula-Jicaque sites does not show as great a difference in technique or style as the illustrations given here might lead one to believe. The difference might result from regional variation, i.e., there might have been a slight dissimilarity in ceramic workmanship as there was in Sula-Jicaque speech.[41] In fact, the type of ware (Fig. 43, *c*, *g*, and *h*) is found as far east as the Aguan Valley,[42] and even in border areas such as the Comayagua. It is most abundant, however, in Sula-Jicaque country, and there is a strong possibility that it is Sula-Jicaque.

From the material available, we can make the following observations regarding what we term Sula-Jicaque ceramic style. The majority of the ware is unpainted, and of a brown, a grey-brown, a grey, or a deep red clay. The vessels are generally bowl shaped (Fig. 42.). When legs do occur, they are heavy and stubby (Fig. 42, *o–q*). An apron (Fig. 44, *f*) is occasionally used instead of the pot leg. The patterns are simple incised lineal ones with a preference for cross-hatchings, incised squares, and faint punctate marks. The handles are usually plain loop handles. Sometimes a nodule or a raised animal head is used either as a handle or as a handle decoration.

Unfortunately, although a number of crude human figurines have been encountered in the Sula Plain, none have appeared in the above mentioned locations, making it impossible to attribute them to any particular people.

---

[41] Membreño, 1897. [42] Stone, 1941.

Other objects found in historical Sula-Jicaque sites are "candelarias," bark beaters, "spindle whorls," stone balls, and glass beads. We know of only one-hole "candelarias" from these sites. They are made with a rounded bottom which raises almost to a bulge and then tapers up almost to a point (Fig. 43, *c*). Some candelarias have three protruding corners around the bulge. When this occurs, the corners are decorated with circles of faint punctate holes. The bark beaters have both broad line and narrow line grooves, as the fragment in Fig. 45 from Subirana-Clay "spindle whorls," or beads (Fig. 43, *e*), from Cangelica, are some, times found with a simple incised pattern. There are a few very small. round, or nearly round, stone balls of a size which fits into a man's hand. Beads, like the green-blue glass one in Fig. 43, *a*, from Cangelica, are very common in historical sites. It is the usual form of trade bead and occurs in different colors throughout this area.

We feel that after an examination of all the artifacts obtained from locations associated with the Sula-Jicaque, we can sum up archaeological Sula-Jicaque ceramic culture as a relatively simple one. The ceramics are typified by rude pottery which is frequently decorated with incised designs and very natural, although primitively executed, animals or birds. There is a certain virile touch to these interpretations which is the outstanding characteristic of this type of ware. The eminent traits of Sula-Jicaque polychrome ware must wait for further investigation.

The above survey, although having yielded scant results, offers a working basis for future investigation in Sula-Jicaque archaeology. It also opens up the way for a more direct delimitation of Sula-Jicaque territory than is offered by a study of linguistic evidence alone.

From the combined historical, linguistic, and archaeological evidence, we can safely assign to the Sula-Jicaque the region west of Trujillo to Omoa, up the Ulua Valley to the vicinity of the present Santa Barbara, the northeastern portion of the department of Tegucigalpa,[43] westward to Sulaco. From here the Sulaco River itself might be used as a southern boundary for Sula-Jicaque people, even after it meets the Humuya River and until, as part of the Humuya, it enters the Sula Plain.

The specimens identical with Sula-Jicaque pieces which appear in the Comayagua Valley and in the region of Lake Yojoa, must be considered for the present at least, as the result of trade or inter-marriage. To date, neither historic reference proving this area Sula-Jicaque, nor large quantities of Sula-Jicaque ceramics which would point to a definite

[43] A large group of Sula-Jicaque Indians live today in the Montana de la Flor. See von Hagen, 1939.

settlement, have come to light. In fact, the true country of the Sula-Jicaque appears to have been the valleys and mountain ranges of the greater portion of the northwestern coast.

BIBLIOGRAPHY

ANGUIANO, RAMON DE
1908. In "Documentos relativos a la conversion de los Indios Jicaques (años 1798 y 1799)," pp. 398–414.

ANTUÑEZ, C., RUBEN, editor
1937. *Monografía del departmento de Yoro*. Tegucigalpa.

BRINTON, DANIEL G.
1901. *The American Race*. Philadelphia.

Colección de Documentos para la Historia de Costa Rica. Barcelona. t.X.
1907. El Guardián del colegio apostólico de misioneros franciscanos de Nueva Guatemala informa á S.M. sobre el estado de las reducciones y conversiones que están á cargo del referido colegio. Año de 1791, pp. 260–265 (recogidos por el Lic. D. León Fernández).

CORTÉS, HERNANDO
1908. *Letters of Cortés; the five letters of relations from Hernando Cortés to the Emperor Charles V*. Tr. and ed. . . . by Francis Agustus MacNutt. New York.

DÍAZ DEL CASTILLO, BERNAL
1904. *Historia Verdadera de la Conquista de la Nueva España*. Mexico.

Documentos Inéditos de las Indias.
1870. Madrid.

"Documentos relativos a la conversion de los Indios Jicaques (*años 1798 y 1799*)."
1908. *En Relaciones históricas y geográficas de America Central*. Madrid. t. VIII.

EDWARDS, AMORY
N.D. "Xicaque Vocabulary." In the Berendt Mss., No. 8, Philadelphia.

ESPINO, FRAY FERNANDO
1908. In "Documentos relativos a la conversión de los Indios Jicaques (años 1798 y 1799)," pp. 329–385.

JOHNSON, FREDERICK
1940. "The Linguistic Map of Mexico and Central America." In *The Maya and Their Neighbors*. New York.

LEHMANN, WALTER
1920. *Zentral Amerika*. Berlin.

MASON, J. ALDEN
1940. "The Native Languages of Middle America." In *The Maya and Their Neighbors*. New York.

MEMBREÑO, ALBERTO
1897. *Hondureñismos*. Tegucigalpa.

DE MOLINA, A.
1880. *Vocabulario de la Lengua Mexicana*. Leipzig.

NAVARRO, LUIS DIEZ
1850. *Extracto de una relacion sobre el antiguo reyno de Guatemala 1745*. Guatemala.

PELAEZ, FRANCISCO DE PAULA GARCIA
1852. *Memorias para la Historia del Antiguo Reyno de Guatemala*. Guatemala.

POPENOE, DOROTHY
1934. "Some Excavations at Playa de los Muertos, Uloa River, Honduras." *Maya Research*, Vol. 1, No. 2, pp. 61–85.

SAPIR, EDWARD
1929. "Central and North American Languages." In *Encyclopedia Britannica*, 14th ed. Vol. 5, pp. 138–141. New York.

SCHULLER, RUDOLF
1928. *Las Lenguas Indígenas de Centro America*. San José de Costa Rica.

STONE, DORIS
1940*a*. "Demarcación de las Culturas Precolombinas del Norte y Centro de Honduras." *Revista del Archivo y Biblioteca Nacionales. T.* 19, Nos. 2–5. Tegucigalpa.
1940*b*. "The Ulua Valley and Lake Yojoa." In *The Maya and Their Neighbors*. New York.
1941. *Archaeology of the North Coast of Honduras*. Part 1. Memoirs, Peabody Museum of Harvard University, Vol. 9. Cambridge.

STRONG, W. D., ALFRED KIDDER II, and A. J. D. PAUL, JR.
1938. *Preliminary Report of the Smithsonian Institution Harvard University Archaeological Expedition to Northwestern Honduras, 1936*. Smithsonian Miscellaneous Collections, Washington.

VAILLANT, GEORGE C.
1934. "The Archaeological Setting of the Playa de los Muertos Culture." *Maya Research*, Vol. 1, No. 2, pp. 87–100.

VÁSQUEZ, FRANCISCO
1714–1716. *Chronica de la Provincia del Santisimo Nombre de Jesús de Guatemala de el Orden de no. Seraphico Padre San Francisco en el Reyno de la Nueva España*. Guatemala.

VON HAGEN, V. WOLFGANG
1939. "The Lost Jicaques . . ." *Natural History*, Vol. 44, No. 3, pp. 168–177.

Tulane University
New Orleans, Louisiana
February, 1941

A SOUTHERN MAYA-PETEN POTTERY CORRELATION[1]

JOHN M. LONGYEAR, III

THIS paper represents an attempt to correlate, as far as is now possible, the ceramic sequence of the southern Maya area with that established in the Guatemalan Peten. The southern Maya region includes the Republic of El Salvador from its western border east to the lower Lempa River and the Republic of Honduras from its western border east to an arbitrary line slightly beyond the Ulua River and Lake Yojoa. Generally speaking, there have been defined in this region two principal ceramic phases, one stratigraphically below the other. The lower phase contains monochrome and bichrome wares and hand-modeled figurines. The upper horizon consists of the polchrome pottery typical of the region, plus mould-made figurines and whistles.

In the Peten department of Guatemala, the ceramic sequence has been clearly defined through stratigraphic excavation and provided, furthermore, with an absolute time scale in Maya notation through correlation with dated monuments. The pottery of neighboring regions, such as British Honduras and the Guatemala highlands, has been tied in with that of the Peten, thus extending the boundaries of our exact ceramic knowledge.

Can we extend these boundaries further, into the southern Maya area? Investigation so far in that region has given us a sequence of sorts, but with phases poorly defined and chronologies floating vaguely in space. It may be possible to fit some aspects of southern Maya pottery into the well-ordered Peten structure and thus evolve a certain basis for future study in Salvador and Honduras.

The following is a brief summary of the characteristics of the Peten pottery phases, as typified at the site of Uaxactun, with especial emphasis on those diagnostics which may afford a link between the Peten and the south.[2]

The earliest, or Mamon, phase is characterized by a large number of monochrome wares in jar, bowl and plate forms (Fig. 46 *a–c*), decorated mainly by grooving and incising. (Fig. 46, *e*.) Painting is restricted to very simple and crude designs in one color. (Fig. 46, *d*.) Figurines are modeled by hand. (Fig. 46, *f*.)

The Chicanel phase succeeds the Mamon and is distinguished mainly by the presence of wide everted lips on plates (Fig. 46, *g*, *h*), deep groov-

[1] Read before a regional meeting of the Society for American Archaeology in Philadelphia, December 27, 1940.

[2] This summary is compiled from a number of sources, but is essentially contained in Smith, 1940, pp. 243–245.

FIG. 46.—Uaxactun pottery (after Smith). *a-f*, Mamon phase; *g-j*, Chicanel phase; *k-o*, Tzakol phase; *p-v*, Tepeu phase.

ing, occasional positive (Fig. 46, *i*) and batik painting (Fig. 46, *j*), and the absence of hand-modeled figurines. Vessel legs first appear in this phase, the small solid knob form being usual.

Polychrome pottery enters Uaxactun with the Tzakol phase. The designs are largely geometric, but are occasionally conventionalized human figures, and they are usually placed on basal-flanged bowls with ring bases or three hollow rattle feet. (Fig. 46, *k–m.*) Another diagnostic is the black ware cylindrical vase set on three slab legs. This often bears a decoration of carving or a fresco-like painting on plaster. (Fig. 46, *n, o.*)

The last, or Tepeu, phase at Uaxactun continues the polychrome tradition in more elaborate designs on different vessel forms. Natural life figures and glyph bands now predominate (Fig. 46, *q*), and the basal-flanged bowl has given way to the cylindrical vase, the straight-sided bowl and the tripod plate. (Fig. 46, *p, r, s.*) Also in this phase, we find excellent carving in life forms on orange vases and bowls. (Fig. 46, *t.*) A final characteristic here is the mould-made figurine and whistle. (Fig. 46, *u, v.*)

What features of the above sequence are found in the southern Maya area? The correlation problem is a rather difficult one for several reasons. The pottery forms and decorative techniques of Salvador and Honduras are quite different from those of the Peten. This, however, is not surprising, for the elaborate ceramic art of Costa Rica and Nicaragua to the south should certainly be expected to influence greatly any neighboring pottery techniques. In spite of this influence, however, western Salvador and Honduras are definitely Maya. The most obvious proof of this is the architecture and sculpture of sites such as Copan, Los Higos and Paraiso, but the pottery—most evidently the polychrome ware—also follows Maya standards of form and design. This will be shown more clearly later, but it can be pointed out here that Maya features such as tetrapod supports, cylinder vases, glyph band designs and naturalized representation of the human figure are all foreign to Costa Rica and Nicaragua and all occur in quantity in the southern Maya area.

With this preliminary, we can proceed to investigate the possibilities of connections between the southern ceramic group and that of the Peten. The Mamon and Chicanel phases of the latter region can be combined into one general period for the purposes of this paper, since the non-polychrome deposits of Honduras and Salvador have not yet been definitely subdivided.

Monochrome and bichrome sherd deposits have been found at four sites in the southern Maya region. The most primitive-appearing ceramic type was located stratigraphically below polychrome pottery at Los Naranjos, on the northern shore of Lake Yojoa, in Honduras.[3] This

[3] Strong, Kidder and Paul, 1938, pp. 111–115.

deposit consists of sherds of a crumbling ware, largely undecorated, although a very few bear traces of slip or paint and simple incision. Vessel feet are lacking. A few hand-modeled figurines were recovered in this stratum.

At Playa de los Muertos on the Ulua River an entirely different body of pottery was found below the polychrome levels.[4] Sherds here are well finished and come from vessels of varied and sophisticated shapes. Painting is fairly common and grooved designs are often found on both bodies and rims. (Fig. 47, *c*.) Vessel legs, except for a solitary example, are absent. Hand-modeled figurines are commonly associated with the Playa material. (Fig. 47, *a*.)

A short distance from Playa de los Muertos, at Santa Rita, a third type of pottery occurs below the polychrome.[5] Positive-painted sherds are very rare here, their place being taken by quantities of Usulutan ware, a ceramic type decorated by groups of parallel lines, possibly applied by the batik process. (Fig. 47, *b*.) Grooving, especially on the rims, is frequent. Tetrapod supports, in the form of small, solid knob feet, are associated with the Usulutan pottery. Figurines, however, are probably lacking.

The fourth site, at Cerro Zapote, Salvador, connects with the Santa Rita material through the mutual possession of Usulutan ware.[6] The Salvadoranean deposits also contain tetrapod supports, grooving and figurines. This stratum is separated from the polychrome sherds above by a thick layer of volcanic ash.

These southern non-polychrome deposits thus consist of a varied assortment of wares, the interrelations of which present some interesting problems. In the present paper, however, I am most concerned with the features they hold in common. All these early levels are found stratigraphically below polychrome strata; most of them have grooved decoration and hand-modeled figurines; two of them possess Usulutan ware with tetrapod supports. If we compare these items with diagnostics of the Mamon-Chicanel phases of the Peten, we shall find that they check fairly well. Figurines occur frequently in the Uaxactun Mamon, and small, solid feet are found in the Chicanel, although whether they formed tripod or tetrapod supports is not known. Grooved decoration is present in both phases. True Usulutan ware is unknown at Uaxactun, but the batik process employed in the Chicanel may be a similar technique, and thus possibly related to Usulutan in time.

It is, therefore, possible to argue the general similarity of the southern Maya and the Peten pre-polychrome pottery and to postulate their

---

[4] *Ibid.*, pp. 62–75. [5] *Ibid.*, pp. 45–62. [6] Lothrop, 1927.

approximate contemporaneity. Any dating for these early levels is necessarily tentative, but since 9.0.0.0.0, or A.D. 435 in the Goodman-Martinez-Thompson correlation, is given for the upper limit of the Chicanel,[7] we can take this date at present as signifying the close of the pre-polychrome horizon in the south, also.

Features typical of the Uaxactun Tzakol phase are rare in Honduras and Salvador. A scant half-dozen sherds of basal-flanged polychrome bowls at Copan, Honduras, are obviously importations from the Peten (Fig. 47, *d*), and Copan further relates to the Tzakol by the possession of black ware, cylinder vases with covers and tripod slab leg supports (Fig. 47, *e*).[8] This, however, is about as far as we can go in this connection. In the first place, there is an almost complete absence of Salvador and Ulua Valley types in the levels containing Tzakol forms at Copan, so that this site cannot serve as a bridge between the Peten and the south. Secondly, basal-flanged bowls and tripod cover vases of Tzakol types are not reported in Salvador and Honduras outside of Copan.

Tepeu links in the south are somewhat more frequent. At Copan, several sherds of cylinder vases with fine figure-painting are definitely in the Tepeu tradition (Fig. 47, *f*),[9] and one bowl, found in a tomb, may possibly be a direct importation from some Peten site during that phase. Collections from Salvador and the Ulua Valley-Lake Yojoa region contain a number of cylinder or barrel-shaped vases, practically all bearing decorations of human figures and glyph bands. (Fig. 47, *g*.) These vessels have flat bases, no feet, and straight rims undifferentiated from the fairly thin walls. This form stands out from the usual polychrome vase of the southern area, which is thick-walled, with a bulging, incurving lip, and supported by three low, slab feet. (Fig. 47, *h*.) The decoration on the latter vessels may consist of either human or animal figures and glyphs, or geometric designs. The thin-walled cylinder or barrel vase thus appears to be outside the southern tradition and, since it does not appear in Costa Rica or Nicaragua, it may be a reflection of the cylinder vase of the Peten Tepeu. Since practically all the polychrome collections of the southern area have been obtained by purchase from non-scientific excavators, the temporal relations of the thin-walled and thick-walled polychrome vessels of Honduras and Salvador cannot be exactly determined at present, although it is certain that they are partially contemporaneous. A final Tepeu characteristic in the south is the abundance of mould-made whistles and figurines found in polychrome deposits. (Fig. 47, *i*, *j*.)

In the Peten, the Tepeu phase lasts from 9.10.0.0.0 (A.D. 633)

[7] Thompson, 1939, p. 240. [8] Longyear, 1940. [9] *Ibid.*

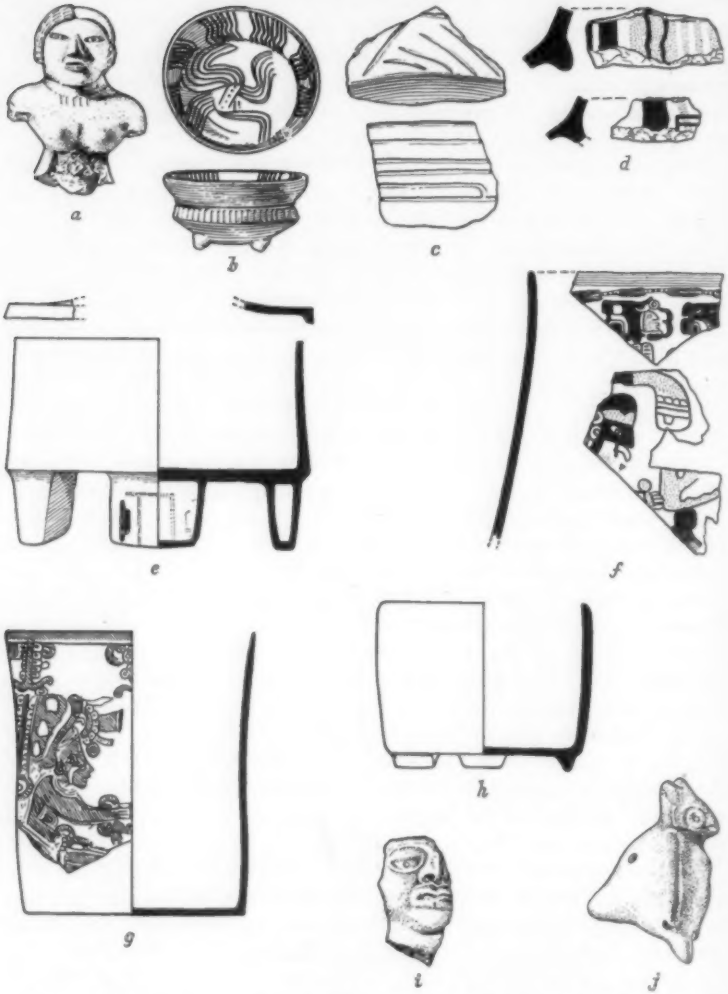


FIG. 47.—Southern Maya pottery. *a*, Ulua Valley hand-modeled figurine; *b*, Usulutan ware bowl, Salvador (after Lothrop); *c*, grooved sherds, Ulua Valley (after Strong, Kidder and Paul); *d*, sherds of polychrome basal-flanged bowls, Copan; *e*, tripod vase with cover, Copan; *f*, sherds of polychrome vase, Copan; *g*, cylinder vase, Ulua Valley; *h*, tripod vase, Ulua Valley; *i*, mould-made figurine, Ulua Valley; *j*, mould-made whistle, Ulua Valley. (Specimens, unless otherwise credited, are in the Peabody Museum, Cambridge, Mass.).

until 10.8.0.0.0 (A.D. 987). This span of time, therefore, might also include the Tepeu forms at Copan and the thin-walled vases of other southern regions.

One more site deserves consideration in this paper. Naco, located on the lower Chamelecon River in Honduras, is mentioned in several Spanish documents and was visited by Bernal Díaz in 1525. Recent excavations here have uncovered native polychrome and bichrome sherds associated with Spanish colonial pottery.[10] The indigenous material consists of vessels with geometric designs in red on white and red and black on white. The cylindrical tripod vessel legs characteristically bear four rounded lobes or effigy faces near the bottom. There are also quite a few sherds with stamped decoration. This pottery can be dated with certainty to the early sixteenth century through the presence of the Spanish sherds.

Thus, we have a few tentative dates for the southern Maya area. Pre-polychrome pottery may end about 9.0.0.0.0 (A.D. 435), Tepeu connections place a a good deal of the polychrome ware between 9.10.0.0.0 (A.D. 633) and 10.8.0.0.0 (A.D. 987), and the Spanish associations at Naco date the sherds there to a little after A.D. 1500.

Several problems have been raised by the foregoing discussion, of which I may here briefly discuss two. In the first place, I believe it should be possible to subdivide the pre-polychrome horizon of the south into at least two phases. Perhaps the controlling factor here will be the presence or absence of Usulutan ware. Deposits with Usulutan sherds may be later than those without, since the batik process of the Uaxactun Chicanel does not appear in the Peten until the second pre-polychrome phase.

Secondly, the polychrome pottery classification of the southern area needs refinement. This, at present, has not been satisfactorily accomplished. Our available data on relations with the Peten leave two large gaps in the southern sequence: one at the beginning of the polychrome horizon, from A.D. 435 to 633, and the other at the end, from A.D. 987 to 1500. These gaps presumably should be filled with polychrome types, but this cannot be done until the various painted wares have been assigned to their proper positions in time and space.

BIBLIOGRAPHY

LONGYEAR, J. M.
1940. "The Ethnological Significance of Copan Pottery." In *The Maya and Their Neighbors*. New York.

[10] Strong, Kidder and Paul, 1938, pp. 27–34.

LOTHROP, S. K.
1927. *Pottery Types and their Sequence in El Salvador.* Indian Notes and Monographs, Museum of the American Indian, Heye Foundation, Vol. I, No. 4.
SMITH, R. E.
1936*a*. *Preliminary shape analysis of the Uaxactun pottery.* Carnegie Institution of Washington.
1936*b*. *Ceramics of Uaxactun: A Preliminary analysis of decorative techniques and design.* Carnegie Institution of Washington.
1940. "Ceramics of the Peten." In *The Maya and their Neighbors.* New York.
STRONG, W. D., A. KIDDER, and A. J. D. PAUL
1938. *Preliminary report on the Smithsonian Institution-Harvard University Archaeological Expedition to Northwestern Honduras, 1936.* Smithsonian Miscellaneous Collections, Vol. 97, No. 1. Washington.
THOMPSON, J. E. S.
1939. *Excavations at San Jose, British Honduras.* Carnegie Institution of Washington, Pub. No. 506. Washington.

Peabody Museum
Cambridge, Massachusetts
May, 1941

FACTS AND COMMENTS

TERRA INCOGNITA?

A recent paper by Neil M. Judd in the Swanton Anniversary Volume, *Essays in Historical Anthropology of North America* revives an idea that should be corrected. This has to do with what has been done and what is being done concerning the archaeology of the Colorado River Valley and adjacent desert areas of western Arizona and southeastern California. Judd writes on page 434: "Although this region has long been inhabited by Yuman and Mohave groups, it is still terra incognita to archaeologists." He mentions the work of the Gladwins, of Hargrave, and of Colton but fails to make any reference to other important papers that contain material on the region. Some of these are listed in the brief bibliography accompanying this note.

Two of these papers are particularly worthy of mention here because they are concerned primarily with the area: *Yuman Pottery Making* and *Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas*, both written by Malcolm J. Rogers of the San Diego Museum, San Diego, California. The study of the archaeology of the region has been a project of the San Diego Museum for some years.

The first paper is on the ceramics of the later people of the region, but it also has a direct bearing on the earlier groups. The pottery of the later Yuman people is the outgrowth of that of the earlier cultures of the area. The second paper is on the pre-ceramic cultures of the region. In the "General Introduction" of the paper (pp. 1–3) is a discussion of the present state of knowledge on the area and of what is being done towards future work. At the present time there is in preparation at the San Diego Museum a report on the older pottery stages. From this, it will be realized that the Colorado River Valley and adjacent desert territory is not such a "terra incognita."

A correction should also be made in the usage of terms in line five, p. 434, of Judd's paper. He writes: " . . . Yuman and Mohave groups . . ." The Mohave is a Yuman group. (Kroeber, 1925, p. 726.) Yuman is the linguistic family to which Mohave, Yuma, Maricopa, Cocopa, and other groups in western Arizona, southern California, and Baja California belong (Kroeber, 1939, pp. 41–44).

BIBLIOGRAPHY

CAMPBELL, E. W. C.

1931. *An Archaeological Survey of the Twenty-Nine Palms Region*. Southwest Museum Papers, No. 7. Los Angeles, California.

1936. "Archaeological Problems in the Southern California Deserts." AMERICAN ANTIQUITY, Vol. 1, No. 4, pp. 295–300. Menasha, Wisconsin.

CAMPBELL, E. W. C. and W. H., and others.

1935. *The Pinto Basin Site*. Southwest Museum Papers, No. 9. Los Angeles, California.

1937. *The Archaeology of Pleistocene Lake Mohave*. Southwest Museum Papers, No. 11. Los Angeles, California.

COLTON, H. S.

1939*a*. *An Archaeological Survey of Northwestern Arizona Including the Description of Fifteen New Pottery Types*. Museum of Northern Arizona, Bulletin 16. Flagstaff, Arizona.

1939*b*. *Prehistoric Culture Units and Their Relationships in Northern Arizona*. Museum of Northern Arizona, Bulletin 17. Flagstaff, Arizona. (Referred to by Judd.)

GLADWIN, H. S.
1937. *Excavations at Snaketown: Comparisons and Theories.* Medallion Papers, No. 26, Gila Pueblo. Globe, Arizona.

GLADWIN, W. and H. S.
1930*a*. *The Western Range of the Red-on-buff Culture.* Medallion Papers, No. 5, Gila Pueblo. Globe, Arizona.
1930*b*. *An Archaeological Survey of the Verde Valley.* Medallion Papers, No. 6, Gila Pueblo. Globe, Arizona. (Referred to by Judd.)

HARGRAVE, L. L.
1938. *Results of Study of the Cohonina Branch of the Patayan Culture in 1938.* Museum of Northern Arizona, Museum Notes, Vol. 11, No. 6. Flagstaff, Arizona. (Referred to by Judd.)

HARRINGTON, M. R.
1933. *Gypsum Cave, Nevada.* Southwest Museum Papers, No. 8. Los Angeles, California.
1937. "A Stratified Camp-Site near Boulder Dam." *The Masterkey*, Vol. 11, No. 3. Los Angeles, California.

HARRINGTON, M. R., and others.
1930. *Archaeological Explorations in Southern Nevada.* Southwest Museum Papers, No. 4. Los Angeles, California.

JUDD, N. M.
1940. "Progress in the Southwest." In *Essays in Historical Anthropology of North America*, published in honor of John R. Swanton, Smithsonian Miscellaneous Collections, Vol. 100. Publication 3588. Washington, D. C.

KROEBER, A. L.
1925. *Handbook of the Indians of California.* Bureau of American Ethnology, Bulletin 78. Washington, D. C.
1939. *Cultural and Natural Areas of Native North America.* University of California Publications in American Archaeology and Ethnology, Vol. 38. Berkeley, California.

ROGERS, M. J.
1929. *Report of an Archaeological Reconnaissance in the Mohave Sink Region.* San Diego Museum Papers, No. 1. San Diego, California.
1933. In E. C. JAEGER, *The California Deserts; A Visitors Handbook.* Stanford University Press. Palo Alto, California.
1936. *Yuman Pottery Making.* San Diego Museum Papers, No. 2. San Diego, California.
1939. *Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas.* San Diego Museum Papers, No. 3. San Diego, California.

MALCOLM F. FARMER
San Diego Museum
San Diego, California

ADDITIONAL EVIDENCE OF SCALPING[1]

Interest in the evidence of early scalping in aboriginal America was stimulated by

[1] Grateful acknowledgment is made to the Alabama Museum of Natural History and the Works Projects Administration of Alabama for assistance in the preparation of this note.

Georg K. Neumann in an article which appeared in AMERICAN ANTIQUITY.[2] Since then, another specimen coming from prehistoric Middle Mississippi horizons at Mound State Monument, has been described.[3]

It came to my attention, quite accidentally, that a specimen from the Earth Mound Ruins,[4] Nebraska, described by Hrdlička, presents such a markedly similar appearance to that found at Moundville, that a comparison of the two is in order.

Hrdlička describes the fragments (Pl. XXXVII, Fig. 1), numbered 251 and 894, from the Wallace Mound, Sarpy County, Nebraska, as follows:[5]

> The skull presents interesting and extensive artifacts of a peculiar nature. Over the frontal, parietal, and part of the occipital are connected and, to some extent, symmetric, irregular grooves, which appear as if made with a coarse implement such as a stone axe, or a large stone knife. They are from two to four millimeters deep, and range from six to more than twenty millimeters in breadth. They present clean, though irregular and grossly serrated edges, in the outer compact layer of the bone in the front, but become more diffuse in the back, particularly over the posterior part of the right parietal and on the right half of the occipital squama. They reach well into the cancellous tissue and, in places, particularly in the back on the right side, to the ventral compact layer. On the occipital this compact layer shows a number of small perforations, apparently the result of inflammation or suppuration. There is nowhere in the grooves, or in their vicinity, any hypertrophy of the bone tissue, but there are numerous places which show what appears to be slight repair, from which it would seem that the injury was inflicted during the life of the individual, who survived for some time at least. The outline of the main groove over the frontal and parietals surrounds, in an irregular circular way, the crown of the head and might suggest a crude attempt at scalping; but there are grooves also within this circle, particularly one along the sagittal suture. Nothing suggests that the injury might be due to the growth of roots or to the gnawing of animals. Possibly further specimens from the same region will shed light on the exact nature of the peculiarity.

The specimen from Moundville (Pl. XXXVI) was examined by Doctor George S. Graham, a pathologist of Birmingham, Alabama, who describes it as follows:

> The deformity upon skull number 2177 seems best explained as the result of a scalping injury. The photographs present the characters very clearly and there is probably no need for extended description. It ought, however, to be emphasized that the grooved deformity extends in irregular horizontal lines about the calvarium; it is, within limits, of uniform width and depth, that the marginal lipping is such as might be expected from a repair process following injury and that the floor of the groove consists of a compact bone representing a partial restoration of the external table through new bone formation proceeding from the diploe. A scalping injury might well follow the line represented by the present groove. Here the periosteum could have been destroyed by the cutting instrument while that over the vertex remained intact. Succeeding infection would be capable, I believe, of producing an osteitis limited to the area of denuded bone injury by the deep cut, leaving in its wake a ragged groove that has been successfully smoothed over by a repair growth of new bone. Important to such explanation of the defect, is the fact that its relative uniformity suggests a single original injury rather than a discontinuous or long enduring process of destruction while the repair growth also has an appearance of equal age throughout.

It is interesting to find in such widely separated geographical areas, two specimens afflicted with similar pathological grooves, probably the sequel of scalping. Gilder places the age of the earth lodges found at Child's Point on the Missouri River in eastern Nebraska as antedating the time of the White invasion as there are no remains or evidences of horses found with the ruins. He believes, further, that the skull fragments from the Wallace Mound belong to the occupants of the earth lodges.

Neumann mentions only one other skull from the historic cemetery at Madisonville with indications of scalping, in addition to the one from the Central Illinois which he

---

[2] Georg K. Neumann, "Evidence for the Antiquity of Scalping from Central Illinois," AMERICAN ANTIQUITY, Vol. 5, No. 4, 1940, pp. 287–289.

[3] Charles E. Snow, "Possible Evidence of Scalping at Moundville," Part II, *Museum Paper 15*, Geological Survey of Alabama. In Press.

[4] Robert F. Gilder, "Excavation of Earth Lodge Ruins in Eastern Nebraska," with a "Report on the Skeletal Remains" by Aleš Hrdlička. *American Anthropologist*, Vol. 11, No. 1, 1909, pp. 56–84.

[5] *Ibid.*, pp. 82–83.

describes. This Nebraskan specimen definitely extends the scalping areas prescribed by Neumann west of the Mississippi River to the west banks of the Missouri.

CHARLES E. SNOW
Alabama Museum, W.P.A.
Birmingham, Alabama

FLUTED POINTS FROM WISCONSIN

Recently, two fluted points from Wisconsin were brought to the writer's attention by W. F. Spengler, a student at Phillips Academy. They are the property of his father, Mr. S. L. Spengler of Menasha, Wisconsin, who very kindly sent them to Andover for the writer's inspection. Both finds were surface finds, but in spite of this fact it seems worth recording them, since both are known to have come from the vicinity of Madison. The smaller of the two (Pl. XXXVII, Fig. 2, *a-a'*.) is from the farm of Tom Halverson and was found on a field close to the inlet of the Yahara River on the west shore of Lake Kegonsa. Its base, as is shown by the photographs, has the slight prominence characteristic of the type illustrated in Roberts' Fig. 3a and Plates 5b and 6b.[6] Fine retouching has been used to finish the base. The channel flake, which is an extremely shallow one, runs to the tip without hinge fracture.

The larger of the two (Pl. XXXVII, Fig. 2, *b-b'*.) is said to have come from the Oxbow on the Waupaca River, town of Royalton, Waupaca County. The chipping is much cruder, larger flakes being detached than was the case with *a*. The basal notch has been smoothed so that it is not rough when the finger is rubbed in it. As can be seen, the channel flake runs only part way up on either side and ends with a rather prominent hinge fracture.

DOUGLAS S. BYERS
Andover, Massachusetts

FOLSOM AND YUMA POINTS FROM THE ESTANCIA VALLEY, NEW MEXICO

A promising field for sites of ancient man lies in the region of the Estancia Valley, central New Mexico. This area was covered by the vast, extinct Pleistocene Lake Estancia, estimated by Antevs to have been at its height 15,000 years ago.[7] The lake covered approximately 450 square miles and had a maximum depth of about 150 feet.[8] Today, evidence of the lake remains in the form of beach terraces and gravels. Some 160 miles to the east are the Clovis sites excavated by Howard, while about thirty miles to the west is Sandia Cave, a site of ancient man excavated by the University of New Mexico.

To date, I have only found one Folsom site in the Estancia Lake region. However, several surface finds of Folsom and Yuma points have been brought to my attention. The Folsom site is located on top of the north terrace of the lake about five miles north of Moriarity, New Mexico. It consists of little more than a blowout area of about ten acres that is littered with spalls and an occasional worked artifact. The sand has been blown out to a depth of about ten inches. No changes of stratigraphy are noticeable at

---

[6] Roberts, F. H. H., Jr. *A Folsom Complex*. Smithsonian Miscellaneous Collections, Vol. 94. No 4.

[7] E. Antevs, *The Occurrence of Flints and Extinct Animals in Pluvial Deposits near Clovis, New Mexico*, Proceedings of the Philadelphia Academy of Natural Sciences, Vol. 304, 1935. [8] *Ibid.*

Skull of young adult female, from Moundville, showing pathological groove probably the result of scalping injury:—*a*, norma lateralis; *b*, norma facialis; *c*, norma verticalis; *d*, norma occipitalis.

FIG. 1.—Skull of young adult male, from Nebraska, showing pathological groove possibly caused by scalping injury.

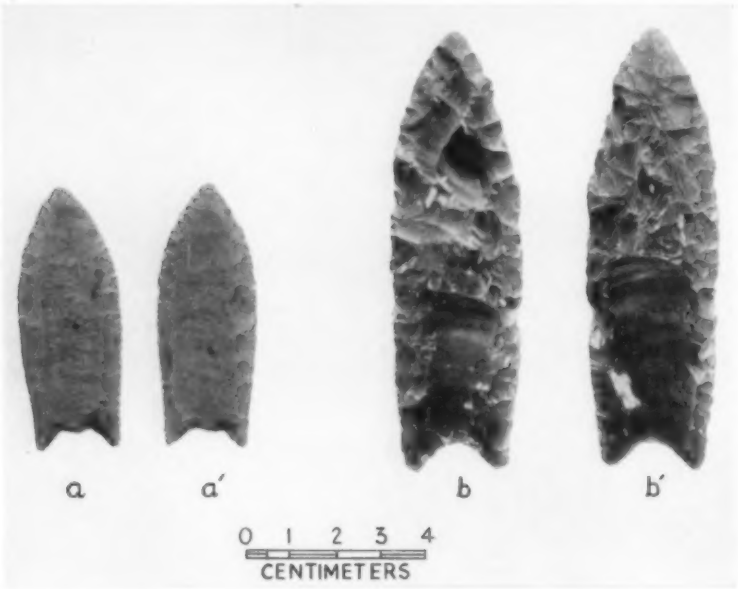


FIG. 2.—Fluted points from Wisconsin.

the site. In 1940, two bases of Folsom points were picked up at this area. One, made of white chalcedony, measures 20 mm long, 12 mm wide, and 3 mm thick. This point was finely made, the chipping being very minute and the grooves symmetrical. The basal portion was concavely indented. The other base of a Folsom point was of brown chalcedony made in the same fashion as the white one. It measures 17 mm long, 20 mm wide, and 3 mm thick. Both bases belong to the very minute or "pygmy" type of Folsom point. Several hearths, consisting of rings of small water-worn boulders, occur on the surface of this site. It is questionable whether these hearths can be attributed to Folsom man because there is evidence that Plains Indians also occupied the site. This fact was demonstrated by the finding of several typical Plains Indian arrow points. Additional artifacts found at the site are crude scrapers that are little more than flakes with a chipped edge, small, ovoid quartzite manos, and a few bits of black-on-red pottery. The majority of the spalls are of a dark, reddish-brown rhyolite-like stone.

An interesting group of artifacts from the Estancia Lake region are three Yuma and one Folsomoid point made of obsidian. These artifacts are worthy of mention in that there appears to have been little use of obsidian in making Folsom and Yuma points. The only Folsom point of this class that has come to my attention is one found in Idaho.[9] There are also some recent finds in California that are questionably placed in this category.[10]

The obsidian Folsomoid point was plowed up in a field about a mile south of the Quarai State Monument, which is on the western edge of the postulated boundary of Lake Estancia. This area lies in the Upper Sonoran life zone. The artifact is very long and narrow, measuring 116 mm long, 33 mm wide at its greatest breadth, 26 mm wide at the base, and 10 mm thick. It has a concave, indented base, the edges of which have been ground. Other characteristics are diagonal chipping, retouched edges, and a central groove that is 33 mm long or about one-fourth of the length. With the exception of the central groove, the artifact resembles the Yuma points in shape and appearance rather more than the Folsom points.

One of the obsidian Yuma points was found in a valley to the west of the Quarai State Monument where the vegetation changes from the Upper Sonoran to the Transition life zone. This is a finely-made point that measures 62 mm long, 25 mm at its greatest width, and 5 mm thick. The artifact has a curved, indented base with a ground edge, a long tapering shape that is wider in the middle than at the base, and the fine diagonal chipping that is characteristic of Yuma points.

Another of the obsidian Yuma points was found near the southeast boundary of the extinct lake, close to the base of the Chupadero Mesa. This area lies in the Upper Sonoran life zone. The tip is missing from the point which now measures 48 mm long, 19 mm wide, and 6 mm thick. It has a slightly indented base with retouched edges, fine diagonal flaking that meets in the center, and the nearly parallel sides. Judging from its present shape, the artifact was probably twice as long as it now is.

Related in shape to the above point, is the base of another Yuma point that was found in the Transition life zone high up in the Manzano Mountains to the west of the Quarai State Monument. This artifact is 22 mm long, 20 mm wide, and 5 mm thick. It has a straight base with a retouched edge, parallel sides, and fine diagonal flaking. It is similar to Renaud's Type I, Base A.[11]

Several more Folsom and Yuma points have been found on the surface in the region of Lake Estancia. A Yuma point made of argillite was excavated in the Quarai Ruins by

[9] Frank H. H. Roberts, Jr., personal communication, February 1940. [10] *Ibid.*

[11] E. B. Renaud, *Yuma and Folsom Artifacts (New Material)*, Proceedings of the Colorado Museum of Natural History, Vol. 11, No. 2, 1932.

Baker in 1936[12] and another, made of grey chert, by the writer in 1939. A very well-made, jasper Folsom point was found in a field at the south edge of Lake Estancia.[13] A jasper Yuma point came from a field to the west of Manzano, New Mexico. In a field close to the Folsom blowout site previously mentioned in this paper, a farmer picked up a red chalcedony Yuma point. This artifact was characterized by parallel sides. Two grey chert points that have been tentatively classified as Yuma were found in a site to the west of Moriarity, New Mexico.[14]

The significance of this material lies in the fact that it forms a connecting link between the Clovis and the Sandia Cave sites of ancient man. It also suggests another association between Folsom and Yuma points and the extinct Pleistocene lakes.

Wesley R. Hurt, Jr.
Albuquerque, N. M.

A SOUTHERN OKLAHOMA COPPER ORNAMENT

In 1937, while exploring a series of rock shelters in the southern extremity of Pontotoc County, Oklahoma, a copper ornament was found in association with shell tempered potsherds and flint artifacts. Due to the composition of the article, its construction and embellishments, a careful check was made as to its possible origin. Data and conclusions are given in the following.

Fig. 48.—Extended design of a copper ear ring from Oklahoma.

The ornament is an incomplete ring, 2 cm in diameter, 9 mm wide, and with a straight gap 1 mm across. It is 1.5 mm thick at the center and bevels to the edges. Designs are on the outer surface. The composition is free copper seemingly identical with that found on the Keweenaw Peninsula in northern Michigan. After being cleaned of an oxide coating in 1937, the ring has remained untarnished. Designs are triangular in pattern and are stamped, apparently by three different dies, one giving a finer imprint than the other two. Microscopic examination discloses the multiple use of a single die. Only one line is stamped at a time. As will be seen from the illustration, one-third of the total design differs from the other two similar patterns. On the former section, notches indent the edges. The triangles of this section are poorly made in contrast with the regular spacing of parallel lines in the latter sections.

Although the ring is suitable for wearing on the finger, this is not the use to which it was put by the aboriginal. Instead, it was worn as an ear ring, being clipped on by spreading and letting it pinch onto the lobe of the ear. This use was attested to by several Indians whose former homes were in the Great Lakes region. As these individuals were consulted at different times, and in different localities, and each ascribed the same use to the ornament, it seems reasonably safe to accept their identification.

The ear ring was in direct association with prehistoric material and no doubt

[12] Ele Baker, "Excavations at Quarai State Monument," in manuscript, University of New Mexico.
[13] In the Collection of the Shaeffer Hotel, Mountainair, New Mexico.
[14] Frank Hibben, personal communication, April, 1939.

reached this area in Oklahoma by the medium of trade. Copper artifacts originating in the upper Mississippi region occur rather frequently in northeastern Oklahoma, one hundred and fifty miles away.

H. R. ANTLE
Sulphur, Oklahoma

TAPAJÓ POTTERY[1]

In *Etnologiska Studier* 8, 1939, Helen Palmatary analyzes former Tapajó pottery from Santarem, Brazil. On pages 122–123, she gives a tabulated list of thirty-five struc-

TABLE 1.

	+	−	·	BWI	GrA	SE	Miss	Isth	Ven	Sant
British West Indies	11	21	3	x	.75	.38	.19	.25	.31	−.19
Greater Antilles	11	23	1	.75	x	.24	.12	.12	.29	−.12
Southeastern	14	21	—	.38	.24	x	.26	.26	.14	−.09
Mississippi Valley	23	12	—	.19	.12	.26	x	.54	.57	.09
Isthmian Area	25	10	—	.25	.12	.26	.54	x	.50	.20
Venezuela	18	10	7	.31	.29	.14	.57	.50	x	.21
Santarem (Tapajó)	31	4	—	−.19	−.12	−.09	.09	.20	.21	x

tural and stylistic pottery traits from eleven South and North American areas. These areas, she says, are "generalized somewhat," and they are not defined. Her symbols in the table are *3, 2, 1* for frequent, less frequent, rare; *p* for probably present; *a* for prob-

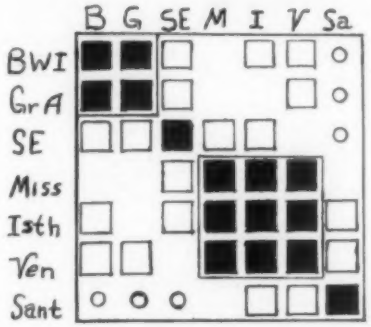


FIG. 49.—Coefficients of pottery traits, diagrammatic representation of Table 1.

ably absent; *n* for no data. I have read *3, 2, 1, p* as +; *a* as −; and have computed the interarial *Z* coefficients. $Z=(a+d-b-c)/N$.

Four of the areas are represented by many fewer data than the rest. The number of no-data blanks is 21 for Columbia, 21 for Mouth of Amazon, 24 for British Guiana, and 25 for Dutch West Indies, out of 35 possible traits. For the other areas, the number of blanks is only between 0 and 7, the total of + and − between 35 and 28. As expect-

[1] Typing and drawings for this note by personnel of Works Projects Administration Official Project No. 66-1-08-62, Unit A-15.

able, the coefficients for the four areas with few data come out rather randomly, and I therefore omit them.

Fig. 49 is a diagrammatic representation of the coefficients shown in Table 1, with solid squares for values of .50 or above, hollow squares for .20–.49, and small circles for negative coefficients.

Two groups appear: (1) Greater Antilles and Lesser Antilles ("British West Indies"); and (2) Mississippi Valley, Isthmian Area, Venezuela. The southeastern United

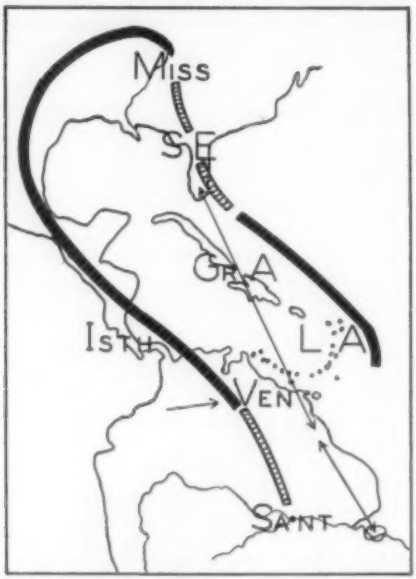


FIG. 50.—The Mississippi-Southeast-Antillean-Isthmian-Venezuelan-Santarem region, showing relations of pottery traits.

States is intermediate between the two. Santarem's affiliations, while not high, are definitely with Group 2.

The Antillean group is expectable; but the second group, Mississippi via Isthmus to Venezuela, at first appears preposterous as a true unit. However, the southeastern United States falls definitely intermediate between the northern Mississippi end of this group and the Antilles; and Santarem is definitely related to the southern or Isthmus-Venezuela end of the group. There is, thus, a geographical sequence to the areal relations, as shown by the sketch map (Fig. 50), even though a surprisingly recurved one. I am, therefore, disposed to accept the statistical outcome as expressing a relationship that is real in some degree.

The highest values of the less reliable coefficients for the meager areas point the same way, as shown by the arrows on the map.

It may, accordingly, be concluded that, so far as pottery is concerned, there are some indications of relationship over a vast mainland sweep from the middle Mississippi to the lower Amazon; and that, distinct from this, there is an Antillean development which has influenced Florida and the nearer southeastern states, though not to a greater degree than Amazon-Isthmus-Mississippi influences have also entered the Southeast. Relations between northeastern South America and the Antilles are surprisingly slight, especially in view of the fact that Arawaks and Caribs are settled in both areas.

Here may be the clue to the old problem of eastern South American influences in the native culture of the eastern United States; this culture as a whole was basically influenced from Mexico, but in the environs of Florida also by Antillean transmissions, if pottery is a representative sample. Perhaps this will become apparent when eastern United States culture becomes more clearly segregated areally.

These are not Miss Palmatary's views. Although not very committal, she seems to lean rather toward Mississippi-Amazon connections via the West Indies.

Too much inference should not be derived from these indications. The list on which calculations are based deals only with pottery; the traits dealt with are selected mainly from the angle of Santarem; and the areas for which traits are compared are ill defined. Mexico ought, also of course to have been included. Nevertheless, the sample perhaps serves as a sign post of how broader relations may eventuate.

A. L. KROEBER
University of California
Berkeley, California

PLASTER MIXING BOWLS

In recent reports[1] on work done in the area in southern Arizona occupied by the Salado people during the Classic period, a term new to the literature has been introduced, and a feature described which has hitherto not been mentioned by workers in the field. The term "plaster mixing bowls" or "caliche mixing bowls" is self-explanatory, but a description of the feature may be of interest to other workers in archaeology.

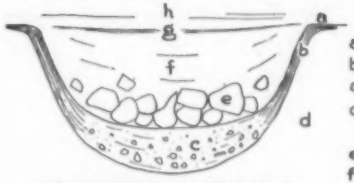
The Salado people, successors to the Hohokam in the Salt and Gila River Valleys, introduced the use of caliche, a limy material native to the region, in building, and erected many great structures of it, quarrying the caliche, pulverizing, mixing and puddling it in courses to form massive walls. Basins lined with caliche are very plentiful about these sites, in all levels, and associated with all wall construction.

During excavations in 1930 in Compound F at Casa Grande National Monument, Arizona, a Salado site which embraced a massive-walled compound, such hemispherical basins were found in large numbers throughout the occupied area. These basins averaged about twenty-four inches in diameter, were about ten inches deep, and often contained nodules of raw caliche. From their numbers and their positions throughout the vertical growth of the site and from the observed lack of other places in which mortar for walls might have been mixed, Irwin Hayden, in charge of the work, deduced that the basins had been used for the mixing of mortar, and named them "caliche mixing bowls." The unfortunate cessation of work at this site prevented the reporting of these features and they were forgotten.

In the period 1936–1940, the author, excavating for the National Park Service, recognized similar basins at Pueblo Grande, a Salado site near Phoenix, Arizona, and made a careful, detailed study of their occurrence and characteristics. These basins also

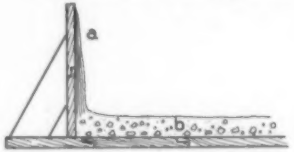
[1] SCHROEDER, ALBERT, A Stratigraphic Survey of the Salt River Valley, 1940; HAYDEN, JULIAN D., Partial Report on Excavations at the University Ruin, 1940.

Mixing bowl section, Pueblo Grande



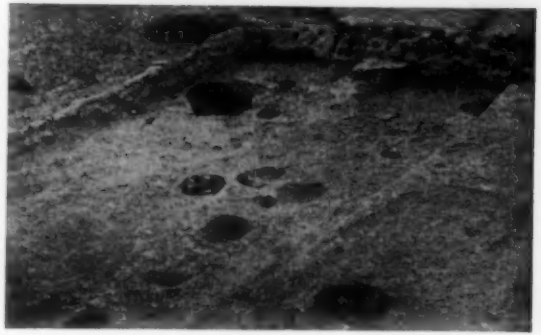
Ideal section of mixing bowl

a-surface of use
b-laminated side-rim
c-base of heavy material
d-dark rubbish, no caliche, pre-Soho
e-lumps of mortar
f-rubbish fill
g-silts
h-caliche-bearing soils, Soho-Civano.

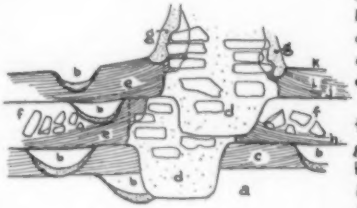


Section through mortar box

a-fine-textured laminations,
b-coarse, heavy material.



Mixing bowls in Court C, (Civano), Pueblo Grande



a-dark, pre-Soho rubbish
b-caliche mixing bowls
c-wash from mound to east
d-wall foundations
e-wash from rain-salt erosion of wall
f-wall debris-rubbish
g-repair of erosion
h-compound floor
i-wash-rubbish
j-second compound floor
k-third compound floor

Diagrammatic section of east compound wall, Pueblo Grande, showing stratification, rebuilding and caliche mixing bowls

were generally about twenty-four inches in diameter and about ten inches deep, resembling those of Compound F in size and shape, but ranged from eighteen inches to an extreme of thirty-six inches in diameter. All were lined with caliche mortar, of varying thickness depending upon the use which the basin had received.

Cross-sections of the bowl linings showed that almost invariably the base was thicker than the sides, being often very thick and massive, and that the lining flared outward at the basin rim, to thin and disappear into the associated surface. The basal lining was generally coarser in texture, often containing gravel and large nodules of unbroken caliche; the lining became finer in texture on the sides until near and at the rim the caliche was almost clay-like. Lamination of the sides and rim was a distinguishing characteristic, and this generally was not plain near or at the bottom. The linings of these bowls were plainly formed by the mixing of mortar in unlined pits cut in the surface of use. Changes in the mix were often plain, in layers of grey, white or yellow mortar among the laminations. Bowls often contained, variously, raw caliche lumps, unmixed pulverized caliche and lumps of mixed caliche mortar.

Comparison of these bowls with present day mortar boxes in which plaster or cement had been mixed showed similar placering downward in the box of heavy components of the mix, gravel and lumps of unmixed material, and an identical lamination of fine-textured material on the box sides, especially near the rim. This was obviously due to successive coating of the box sides with liquid or semi-liquid mortar during mixing.

The situation of these plaster mixing bowls at Pueblo Grande (Pl. XXX) was also significant. The use of caliche as a wall material, and the consequent presence of caliche wash and caliche nodules in accumulated material, was a diagnostic of the Soho and Civano phases (of the Classic period) at Pueblo Grande (as shown by many stratigraphic tests and sherd analyses). Logically enough, then, bowls were confined to these phases. About the large building of Pueblo Grande, erected during Soho times upon demolished Soho houses, were many mixing bowls, and these often showed a sequence of use, or an intruding of one into another.

Retaining walls, erected to enlarge the building after it had been filled with earth, overlay these basins, and the surfaces belonging to these new walls likewise contained basins. Upon the filled building, from Soho times through to the end of the Civano phase, were scores of basins, accompanying the endless remodelling and rebuilding of rooms upon that elevation.

In the late Civano compound at the base of the filled building were many basins, and basins lay along the late compound wall which surrounded the whole. Such basins were often of great value in determining the depth of successive fills in an area, since their rims marked the surface at the time of their use.

At University Ruin, a Salado site near Tucson, Arizona, an area containing hundreds of cubic yards of gravels was excavated by the author in 1940 and in these gravels were many mixing bowls. The gravels were determined to have been derived from the processing of caliche ore, here very gravelly, preparatory to mixing.

These basins differed from others in that they were oval in outline and were flat-bottomed, but they possessed all of the other characteristics of mixing bowls described above, the thickened bases, the laminated sides and rims and the occasional partial fills of poorly mixed mortar.

A similar situation is reported from La Ciudad, in Phoenix, and such basins may be presumed to occur in all similar sites, throughout the area of Salado occupation, where caliche was used as a building material.

JULIAN D. HAYDEN
Phoenix, Arizona

CONCERNING SANDIA CAVE

With the publication, in this issue of AMERICAN ANTIQUITY, of a review of the Hibben-Bryan report on evidence of early occupation in Sandia cave and its correlation with the glacial chronology, there will doubtless come to the minds of many readers the interchanges which have occurred in these pages from time to time since the publication of "A Chronological Problem Presented by Sandia Cave" by Wesley L. Bliss, V. 5, p. 200, this series. The reviewer is not acquainted with the facts and circumstances that gave rise to this controversy, and he and the Editor have deemed it wise that he judge only the published report without knowledge of events which might lead to a biased review. Accordingly, these paragraphs will attempt to explain occurrences that might lead some persons to consider the site as so tainted that its evidence must be taken with a grain of salt.

Following the publication of the item "Sandia Cave," p. 266 of V. 6, this series, the Editor received communications supported by copies of certain documents, from several members of the Society, requesting that in fairness to Bliss and in fairness to the evidence of the cave itself, a full statement of the circumstances surrounding the excavation of the cave and of the publication of Bliss' original article be made public. Since the report by Hibben and Bryan makes only a slight reference to Bliss and his work, it seems more than ever necessary to clear up any doubt that may remain.

In October, 1935, two caves then known as the Sandia Caves, were brought to the attention of Mr. Hibben and Mr. Bliss, by Kenneth Davis of Albuquerque. Together, Bliss, Davis, and Hibben appear to have investigated them. Following this investigation, Bliss brought the caves to the attention of Dr. Donald Brand. On October 18, 1935, the caves were posted as a mining claim with notices signed by Brand, Bliss, Hawley, Hibben and Davis.

On Nov. 7, 1935, Dr. Brand, as acting head of the Department of Anthropology, applied for a permit to conduct archaeological and paleontological excavations in the caves, stating that he was to be in general charge of the work and that Wesley L. Bliss was the individual in charge of field work. The permit, approved January 3, 1936, does not name the individual in charge of field work, but refers to "permittee's field leader." Mr. Bliss and Mr. Hibben were leaders of separate field parties, Mr. Bliss' party working Davis Cave, and Mr. Hibben's party, Sandia Cave. It was hoped that Davis Cave might yield data that would furnish a check against that to be obtained from Sandia Cave. That Davis Cave proved sterile was a matter of deep regret. Following the completion of work in Davis Cave, in March, 1936, all attention was centered on Sandia Cave.

According to Dr. Brand, his report to Mr. O. Fred Arthur, Forest Supervisor, stated that work started at Davis Cave and continued during February and March of 1936 under Mr. Bliss, and that work was commenced in Sandia Cave in Febuary, 1936, under Mr. Hibben. During the academic year 1936–1937, actually from October to January, Mr. Bliss was in charge of the work in Sandia Cave, but very little was accomplished, due to winter rains and bad road conditions. Bliss and Hibben furnished the data for Dr. Brand's report in a joint report submitted February 1, 1937, and signed [in this order] by Frank C. Hibben and Wesley L. Bliss.

There is no question that Hibben was in charge at Sandia Cave from February to June of 1936, or that Bliss was in charge from October, 1936 through January, 1937. Bliss worked with a crew composed of undergraduates, members of the Tiwa Archaeological Society of the University of New Mexico, while Hibben worked with a crew made up of members of his class in North American Archaeology and volunteers. The work of Bliss and his group appears to have been concerned largely with tracing out the rodent disturbance in the front of the cave, a condition that came about following the break-

ing of the calcareous seal by Boy Scouts of Troop 13, of Albuquerque [*see* the Hibben and Bryan report, pp. 3, 12, 19]. Under Bliss, work was continued in the disturbed front portions of the cave, reaching nearly to the limit of the disturbed area.

In the late summer of 1937, Bliss went to Canada, where he remained during the year 1937–38, giving up the work in Sandia Cave. Dr. Brand put Hibben in charge of the excavations in the fall of 1938.

The article "A Chronological Problem," which precipitated the controversy was written about that part of the work in Sandia Cave which was carried on under Bliss' direction and was therefore perfectly proper. That it was fully authorized is borne out by correspondence between Dr. Brand and Bliss. It lay in the Editor's files for a full year awaiting its turn for publication. During this time Bliss had left the University of New Mexico, the only address which he left with the Editor. Galley proof which was sent to him at Albuquerque was never received, else certain glaring errors would have been corrected. By the time the article made its way into print, work had progressed so far that what had been written was neither timely nor correct. For this we must blame the limitations of space in this journal.

Mr. Hibben was not told that Bliss had written anything, and one can well understand that the publication or "A Chronological Problem" might come as something of a surprise to him. It came also as a surprise to Bliss, who had not seen galley proof.

Lest this controversy cast any doubts as to the value of the data derived from the deposits in the cave, it should be emphasized that the disturbance by rodents that entered where the Boy Scouts broke the calcareous seal was clearly defined. This disturbance was confined to the front portions of the cave; as Mr. Bliss has pointed out, there were large portions of the cave that were totally undisturbed. The data from these portions are beyond question.

DOUGLAS S. BYERS
Andover, Mass.

NOTES AND NEWS

A regional meeting of the Society for American Archaeology was held in conjunction with the fortieth annual meeting of the American Anthropological Association at Phillips Academy, Andover, Mass., December 27–30, 1941. One of the features of the program was a symposium on "Man in Northeastern North America" in which twelve speakers participated. Plans are being made by the Robert S. Peabody Foundation for Archaeology to publish these and supplementary papers in the form of a volume of its Papers.

The Society for Applied Anthropology announces the publication of *Applied Anthropology*, a quarterly devoted to the solution of practical problems of human relations in the fields of business and political administration, psychiatry, social work, and wherever human relations play a part. Subscription is only by membership in the Society for Applied Anthropology, Inc., annual dues $5.00. Applications for membership should be sent to the Treasurer, F. L. W. Richardson, Jr., Graduate School of Business Administration, Harvard University, Soldiers Field, Boston, Mass.

The University of New Mexico announces the 15th annual Field Session in Anthropology, July 11 to August 13, 1942, Chaco Canyon, New Mexico. Applications may be made to, and information secured from Dr. Paul Reiter, Director, 1942 Field Session, University of New Mexico, Albuquerque, New Mexico.

The Board of Managers of the University Museum of the University of Pennsylvania has set aside a sum of money to be expended in grants-in-aid for research on Early Man in America. This money is to be administered by a committee composed of Dr. Edgar B. Howard, Chairman, Dr. Wm. Duncan Strong, Columbia University, and Dr. George C. Vaillant. The purpose of the grants is to encourage field research. Applications will be gladly received by Dr. Howard at the University Museum.

The American Association for the Advancement of Science will meet in Ann Arbor during the third week in June. Titles of Papers to be read at the meeting should be sent to Dr. Volney H. Jones, Museums Building, Ann Arbor, Michigan, as soon as possible.

Because of a number of difficulties in the press due to the induction of trained personnel into the service, and other conditions beyond the control of the Editor, this number of AMERICAN ANTIQUITY has been very late in appearing. It is impossible to say whether our normal release date will be maintained in the future. If you do not receive your number on time, remember that we are at war, but that we will endeavor to carry on to the best of our ability.

ARCTIC AREA

Excavations at the ancient Ipiutak site, Pt. Hope, Alaska, were continued in the summer of 1941 by Dr. F. G. Rainey of the University of Alaska, Dr. H. L. Shapiro of the American Museum of Natural History, and Mr. Helge Larsen of the Danish National Museum. Mr. J. L. Giddings excavated at interior sites on the Kobuk. Dr. Rainey reports on the work as follows:

"We completed the excavations of seventy houses, some twenty middens, and approximately five hundred graves on the Pt. Hope spit. This is the total of the excavations for three summers. All seventy houses were excavated in the Ipiutak site. About one hundred forty of the graves are those of Ipiutak people. Ten are graves of people who

are in some way related to the Ipiutak group. At the moment we call these graves the Near Ipiutak type. The rest of the graves were excavated in the Tigara site. Some are obviously quite recent although no living Tigara Eskimo knows any tales of burial in the ground. Other graves in what we call the Tigara group contain harpoon heads, which have the Old Bering Sea form but lack any decoration, hence we assume the graves in the Tigara group represent a very long period of habitation at the Tigara site, and the earliest ones are probably those of people who lived on the Point which is now submerged.

In his search for datable wood at the Kobuk River sites, Giddings excavated about fifty houses and we now have a very extensive collection of archaeological material representing that inland type of Eskimo culture. There is an extensive use of jade, as one might expect, some close correlations with Athapascan sites such as I excavated on the upper Tannana, a definite relationship with Norton Sound, and, oddly enough, a great use of pottery, much more extensive than on St. Lawrence Island or at Pt. Hope."

Dr. Frank C. Hibben of the University of New Mexico writes as follows of his search for Paleo-Indian remains in Alaska:

"Our reconnaissance took place for the most part in two areas of Alaska, one in Cook Inlet and the coast immediately adjacent to the north, and the second in the lower Yukon, centering around the town of Koyukuk. In the Cook Inlet area, after weeks of discouragement, we located a promising site at Chinitna Bay where the sea was cutting into Pleistocene deposits. This site was characterized by an occupation level and by Folsom-like points. The lower Yukon proved rather disappointing. Although some indeterminate evidences did turn up, we found no good sites and added rather little to the information we already had. The Paleo-Indian is certainly present in Alaska but extremely elusive." (*H.B.C.*)

NORTHERN MISSISSIPPI AREA

The W.P.A.-Academy of Science of St. Louis archaeological work in eastern Missouri has been concentrated in two areas. In Jefferson County we are working on a wet rock shelter which seems to tie up stratigraphically with the Hidden Valley Shelter. Pottery deposits of Woodland Cord Marked ware fade out at three feet while the most intensive occupation debris is found at a depth of from four to eight feet. In New Madrid County, Mr. Winslow Walker is excavating a fortified site with a ceremonial area within the enclosure. All village life took place within the fortified area but outside of the ceremonial area. Both the clay tempered cord marked pottery ware and shell tempered smooth surfaced pottery wares are found mixed together. A primary truncate mound has been disclosed in what appears to be a ceremonial mound. We are beginning investigation of the burial mound. Surface surveys in the vicinity seem to show in addition, isolated and small groups of mounds with what appears to be mainly a clay tempered cord marked ware. (*R. M. Adams*)

The principal activity of the Indiana Historical Society continues to be exploratory work at the Angel Site in Vanderburgh County. Excavations are being made extensively in the village, the encircling palisade embankment and on the second largest mound of the group. A laboratory unit works in hand with the excavating group so that, at this writing, all material recovered is cleaned, catalogued, and sorted.

According to a letter from Richard MacNeish, archaeological work under the auspices of the University of Chicago in southeastern Illinois has continued during the fall and winter. At the Kincaid site a conical mound has been completely excavated. Work continues on a long flat-topped mound with a conical mound at one end, and also on a

pyramidal mound with superimposed house levels. The palisade line is being uncovered. Surface survey in the adjoining area has located nine smaller Middle Mississippi site, three Baumer sites and two sites of the Lewis type. One of the Lewis sites is quite large and is located on the bluffs.

The Aboriginal Research Club of Detroit reports the following activities. Casts of petroglyphs located near Greenleaf, Michigan were made by Carl Holmquist and Darrell Richards. These were presented to the Cranbrook Museum and are now on display there. Several members journeyed to the flint quarries along the Walhonding River near Warsaw, Ohio. Some fine specimens of black and blue flint were obtained for comparative study purposes. Comparisons with artifacts made of black and blue flint, found at various sites, show that the Michigan Indian obtained his raw material at this source. At the Gibraltar site, the flint knives and arrow points found with burials are definitely from this source of supply. This dark flint is found on Old Woodland type sites.

During the 1941 season, Dr. P. F. Titterington continued his work on mounds of the Illinois Bluff Focus. He also made a preliminary investigation of two interesting sites in Calhoun County, Illinois which came to his attention. One of these is a cemetery with unnotched and bold side-notched, straight based points with slightly convex sides; several types of corner notch points; round based knives; three types of drills, the most common has a "T" shaped base; tubular, rectangular and "L" shaped bannerstones; 25 grooved axes; 6 hematite plumb bobs; 3 small perforated, pebble pendants. No pottery was found and the skeletal material was in extremely poor condition. The second site is a mound which is more closely related to the Illinois Bluff Focus. Burials were both flexed and extended. Artifacts include a bone spatula, a two holed rectangular stone gorget, a drilled deer canine, small, semiglobular shell beads, bone awl, cut wolf mandibles, antler section identical to those from the Brangenberg mounds, handled mussel shell spoons, conoidal based, grit-tempered, plain and cord-marked pottery with decoration of small punctates and cord-wrapped stick impressions. A more complete report on these sites is planned for the future.

Mrs. George Schoenbeck reports the discovery of the skull of a bison identified as *Bison bison* associated with the skull of a beaver at a depth of three feet in the Clear Lake village site, Tazewell County, Illinois. This site has been reported on by Cole and Deuel in *Rediscovering Illinois*. Excavations at this site have been carried on for the past several years by a party from the Peoria Academy of Science, including Mr. and Mrs. Schoenbeck and Mr. Anson M. Simpson. (*J.B.G.*)

MIDDLE AMERICAN AREA

In his report on "Recent Archaeological Research in Latin America" (*Science*, February 20), describing the results of the various projects of the Institute of Andean Relations, under the auspices of the Office of the Coordinator of Inter-American Affairs, Dr. Wm. Duncan Strong gives the following information on Middle America:

Dr. Gordon Ekholm is now conducting excavations in northeastern Mexico (Project #1). A brief survey of border sites near Laredo, Texas, revealed non-ceramic sites as well as stone-faced rubble mounds containing pottery and tobacco pipes, some of which were of platform type. In central San Luis Potosi a more advanced culture than that of the historic Karankawa was investigated at Buena Vista. Here both round and rectangular stonewalled mounds were excavated, and various types of painted, incised and neg-

ative-painted ceramics encountered. The round buildings suggest Huaxtec types, but the ceramics are different. Preliminary analysis suggests that the latter are related to wares from the early levels at Tajin, Vera Cruz, and to certain types from Teotihuacan. It appears that this region was occupied, possibly in Late Teotihuacan times and prior to the peoples of low culture present in this area in historic times, by a sedentary agricultural people having relationships with both the Tajin and the Tarascan peoples of that period. Subsequent excavations near Tampico revealed plaster-covered conical mounds with stairways, in one case consisting of six superimposed layers. These contained burials accompanied by pottery which shows strong Mixteca-Puebla connections.

In western Mexico (Project #2) Dr. Isabel Kelly made surveys and potsherd analyses in Guadalajara which correlate well with native settlement data in historic documents of 1525 and reveal that the majority of sites pertain to a ceramic complex dominated by Autlan Polychrome ware. There are three major ceramic complexes in this region, two dating from the time of the Conquest, and one earlier. Work is also being carried on in the vicinity of Apatzingan, Michoacan. This is proving interesting but difficult since sites seem to be rare and material scarce, but progress has been made in distinguishing the local cultures, and in correlating them with Colima cultures already distinguished in previous work. Further work is planned in the Tuxcacuesco-Sayula zones of Jalisco, where both local and Colima cultures occur and where evidences of aboriginal copper-working have been reported.

Mr. John Longyear made an archaeological survey of the trans-Lempa region of El Salvador and conducted excavations at San Andres in the western part (Project #10). Working in conjunction with the Carnegie Institution he also uncovered deep deposits separated by a volcanic stratum at the great Quelapa site.

During last summer Drs. Cornelius Osgood and Irving Rouse excavated a number of midden and cave sites and made surveys in both the eastern and western portions of Cuba (Project #5). The excavations yielded extensive information on the preceramic Ciboney Culture and indicated various culture sequences elsewhere. Dr. Carlos Garcia-Robiou is continuing excavations in Cuba.

All of these researches are in regions archaeologically very slightly known.

Owing to the international situation little archaeological research was done in Middle America during the 1941–1942 season by non-local organizations. The Carnegie Institution is continuing work in the Central American nations from Guatemala to Nicaragua. Dr. Philip Drucker is at La Venta, Vera Cruz, studying the ceramics there for the National Geographic Society—Smithsonian Institution Expedition. The Dirección de Monumentos Prehispánicos of the Mexican Government is carrying on its usual researches. Sr. Javier Romero is supervising the exploration of burials and an anthropometric study of their contents in the archeological zones of Monte Negro, Calixtlahuaca and Monte Alban.

(*J.A.M.*)

PACIFIC COAST AREA

The Sacramento Junior College, Sacramento, California is abandoning its anthropological museum, as it needs the space for classroom purposes. The Sacramento Board of Education has decided to give to the University of California the archaeological collection assembled by the late President Jeremiah B. Lillard. This comprises some 20,000 specimens, largely from the Delta region of central California. This bestowal of the collection upon the University of California meets with the approval of Mrs. Lillard, who is much interested in seeing her husband's archaeological life work kept as an intact unit and utilized for further scientific study.

The collection is that upon which President Lillard and his colleagues based their culture horizons for the Delta region. Coupled with the Delta material already in the University of California Museum of Anthropology, this addition gives the University a magnificent accumulation of documented archaeological material from the heart of California. It is hoped that the study of the combined materials may be prosecuted in the near future and the additional results published.

The following is a brief memorandum concerning plans of Professor L. S. Cressman, Department of Anthropology, University of Oregon, for work during the coming year.

He writes, "We plan, in general to continue our work in the lake basin and caves of east central Oregon and to continue the quest for Early Man, especially in the Fossil Lake district. Cope, in the late '80's, reported association of artifacts and extinct fauna in this area. The nature of the fossiliferous stratum at that time was not known and has only recently been established by Dr. Ira A. Allison of Oregon State College as a part of the joint project on Crater Lake and Early Man carried out under the direction of Dr. John C. Merriam. If it is possible to work in the caves we shall attempt to trace the northern extension of the Catlow Cave culture. Previous reconnaissance work in the area has indicated its distribution in that direction.

"I am planning to go into the field for about six weeks to check on reported association of cultural remains and extinct fauna in the Fossil Lake area of south central Oregon and to spend some time in excavation and reconnaissance along the Upper John Day River of the Columbia Plateau in north central Oregon. The purpose of the work in the John Day area is to gather information on the extent of the type of culture remains found in the south central Oregon caves. Artifacts similar to those from the Oregon caves have been found as far north as Wahluke by H. W. Krieger. It is hoped that this work in the John Day area and that of subsequent seasons will define the direction of movement between Wahluke and the Southern Oregon caves."

Southwest Museum reports that Mr. and Mrs. William H. Campbell are continuing their investigation of early sites in the Great Basin region, and expect to have another detailed report ready for publication within a few months.

Mr. Earl H. Morris expects to conduct limited excavations in the ruins of Kawaiokuh in N.E. Arizona this spring under permit from the Interior Department. The specimens will be added to the Charles Avery Amsden Memorial Collection in the Southwest Museum. This work is made possible through the generosity of General Charles McC. Reeve.

The Santa Barbara Museum of Natural History announces that a unique burial exhibit has been installed in the Gould Hall of California Indians, showing the skeleton of an Early Cañalino from Mescalitan Island, lying upon a bier made from the shoulder blade of a whale, decorated with olivella, abalone, and limpet shells, inlaid in asphalt. Steatite beads are over the neck, olivella beads along the spine and about the knees, and a small inlaid sandstone bowl lies beside the skull.

Another exhibit has been completed showing a family in "Bear Track Cave," in the Hurricane Deck cave region in the "back country."

(*E.W.G.*)

BOOK REVIEWS

Evidences of Early Occupation in Sandia Cave, New Mexico, and Other Sites in the Sandia Manzano Region. FRANK C. HIBBEN. With appendix on *Correlation of the Deposits of Sandia Cave, New Mexico, with the Glacial Chronology*, by KIRK BRYAN. (Smithsonian Miscellaneous Collections, Vol. 99, No. 23, Washington, D. C., 1941, 64 pages, 15 plates, 9 text figures.)

This eagerly-awaited monograph adds a significant new chapter on the history of early man in America. Information upon these remote and thinly-scattered hunters has not been accumulating, save for the notable exception of the Lindenmeier dig, with the rapidity which might have been hoped. Hence a paper producing evidence of a cultural horizon underlying that of the Folsom complex is a marked contribution not alone to the prehistory of the Southwest, but to the field of New World archaeology in general. As such, this study deserves the most careful and critical attention.

Briefly summarized, the finds made in Sandia Cave through several seasons of excavation consist of the following: First, the discovery, beneath a calcium carbonate "seal," of a Folsom occupation level composed of charcoal fragments, kitchen debris, flint artifacts and flakes. Faunal remains from this level include horse, camel, mammoth, ground sloth (*Nothrotherium*) and a bison "near, but smaller than *taylori*." It may be mentioned that of these extinct forms, only *Nothrotherium* extends into the lower portion of the "Recent" level above the Folsom horizon. As for the artifacts, both true and unfluted Folsoms were recovered in apparent complete contemporaneity.

Second, below the Folsom floor, and beneath a sterile stratum of yellow ochre, an earlier cultural horizon characterized by points "generally larger than typical Folsoms and not so well chipped. These earlier points are distinguished by a side shoulder or notch suggestive of Solutrean points, although no contemporaneity or connection between them and Old World forms is necessarily implied. . . ." These points, it may be added, are unfluted, but the basal edges are ground. The faunal associations consist of horse, bison (this time assigned to *antiquus*) camel, mastodon, and mammoth.

Unfortunately, the cave makes no contribution to the problem of intermediate Recent horizons. The calcium crust is believed to represent the end of the Pleistocene, and beneath this, lie the two significant horizons. Later material consists solely of Pueblo III, IV, and V potsherds. The cultural distinction between the two lowermost levels seems amply demonstrated and beyond question. Upon the faunal remains, however, this reviewer would venture a comment directed less at Hibben than at what seems a widespread and unfortunate trend toward giving the results of paleontological identifications with gravity and little emphasis upon the condition or quantity of the material upon which such identifications are based. It is true that Hibben devotes a paragraph or so to the general state of the skeletal remains, but what this reviewer regards as a requisite amount of detail upon one or two crucial points is lacking.

Now in the case of animals with tooth or other characters of specific diagnostic value, species, or at least genera can be clearly established upon rather fragmentary material. In many cases the genus of extinct forms is significant enough for the archaeologist. Several of Hibben's forms are recorded in this manner, from material insufficient to establish the species, but clear enough to reveal the presence of such extinct types as the mammoth, camel, and ground sloth. With this procedure no one need have any quarrel.

In the case of the bison, however, a difficult situation arises, and one that demands more detailed treatment than Hibben has accorded it. The identifications, as we have previously indicated, run as follows: Folsom layer, bison believed by Dr. Gazin to be

slightly smaller than the classic *Bison taylori*. A reference is made (p. 34) to the comparative scarcity of bison material in the Folsom stratum. Sandia culture layer, *Bison antiquus*, no reference to material, no reference as to who identified the type, though Dr. Schultz and Dr. Gazin are both mentioned in the preface as having identified "the bulk of the faunal material."

To an archaeologist unfamiliar with the extinct bisons of North America, a distinct difference between the bison fauna of these two levels is most certainly implied. It is not my intention to say that it does not exist. I express only the wish that this material had been photographed and further elucidated. I think I am justified in this seemingly carping insistence for these reasons: First of all, as is well known, the taxonomy of the American bisons has been, and still is, in a state of considerable confusion. Dr. Gazin has labelled the material from the Lindenmeier site as *B. taylori*, though pointing out that this material could be just as readily referred to *occidentalis* or one or another of certain other ill-defined extinct species.[1]

Dr. Schultz has expressed the view that *taylori* should be used only as a varietal term under *antiquus*, since *antiquus* has priority.[2] Hence this distinction in nomenclature in Hibben's list seems to lack physical reality if, as I suspect, the Folsom layer identification is that of Gazin and the Sandia layer identification that of Schultz. In any case the matter deserves explanation.

Second, and of much greater importance, is the problem of variation. No physical anthropologist would have the temerity to name a new species of man without producing the evidence upon which conclusions were based, and evidence would have to be strong enough to demonstrate that the new variant could not be regarded as falling within the normal physiologic range, male and female, of the existing *sapiens*. Now skull and horn proportions are primarily relied upon in the identifications of fossil bison. It is true that the lengths of leg bones average larger in some of the extinct species than in *B. bison*, but when the female range is considered and when we take into account that no extended biometric study of the long bones of extinct bison has been made, I, for one, doubt the value of making or even suggesting varietal distinctions such as "near, but smaller than *taylori*" unless the statements are clearly based on a given quantity of material with the range indicated and accessory photographs if possible. Since tooth structure has proved of little help in identifying the late Pleistocene bison, we are much more dependent upon actual skull and horn core remains as well as measurable long bones.

Under these circumstances the unfortunate tendency to fail to indicate whether bison material consists of skull fragments, slivers, or metapodials, is to be deplored. It not alone fails to bring conviction, but, in addition withholds from use a large amount of potentially valuable information. How long will we have to wait before some willing student of paleontology makes a thorough comparative study of the bison remains from our now authoritatively documented archaeological sites? How long are we going to be content with faunal assignments in which the diagnostic material is so airily dismissed? These comments may appear harsh, but I trust they will not be misread. Hibben has only followed here a practice in which we all, in one way or another, have acquiesced. We started out by disbelieving entirely in Pleistocene man. And now times have so much changed that in treating of a fossil form we sometimes see little need of even moderately extended paleontological discussion. This tendency is one which is to be

[1] Roberts, F. H. H., Jr., *Additional Information on the Folsom Complex*, Smithsonian Miscellaneous Collections, Vol. 95, p. 17, 1936.

[2] Barbour, E. H., and Schultz, C. Bertrand, "Paleontologic and Geologic Consideration of Early Man in Nebraska," *Nebraska State Museum Bulletin*, Vol. 1, p. 435, 1936.

regretted, and one which threatens to become potentially dangerous. We show signs of becoming habituated to a monograph pattern in which paleontological material is accorded only a brief listing, and the substance of the plates is confined to artifacts and geology.

In an appendix Kirk Bryan correlates the cave deposits with the glacial chronology. He reaches the conclusion that the deposits below the seal can be associated with the last major ice advance of the Wisconsin, and hence are datable as late Pleistocene. Certain chemical action which has transpired in the lower horizons of the cave seems to demand climatic conditions of increased humidity over those of the present. These, Bryan suggests, are best correlated with the Corral Creek glacial stage or third substage of the Wisconsin ice, W_3. The association with this particular phase of the Wisconsin ice is admittedly made on the basis of the Folsom artifacts which Bryan and Ray have elsewhere assigned to this stage. Bryan is very frank and fair-minded in pointing out that the age of cave deposits can rarely be solved by direct attack. Within these limitations, he moves with great skill and discernment, and it seems unlikely that his dating can be seriously threatened by any information now at our command. Only the accumulation of more sites, the filling in of missing cultural horisons, will enable us to look with increasing clarity through this early cave dark into which we have so suddenly descended, to the men beyond.

To Hibben has come that rare and longed-for good fortune—to be the discoverer of a new and early cultural manifestation in the New World, and to describe it fittingly. He has, in addition, succeeded in establishing a sporadic distribution for Sandia points from southeastern Colorado to central Texas. Their relationship to the Folsom implements thus awaits investigation. This is our coming task, and one which may illuminate the problem of Yuma points as well.

LOREN C. EISELEY
The University of Kansas

Cultural and Natural Areas of Native North America. A. L. KROEBER. (University of California Publications in American Archaeology and Ethnology, Vol. 38, pp. xii +1–242, 28 maps. Berkeley, 1939.)

If intimate and thorough understanding of a culture calls for understanding of the factors that condition it, the environmental factors cannot be left out of count. Whatever be the reason, whether the trail ran cold or other trails appeared more promising, the environmental factors have for many years past been given stepmotherly treatment by anthropology. There are, however, signs of a change of heart. The present work is the most significant, to the reviewer's knowledge, that has appeared in the field since Ratzel's *Anthropogeographie*.

Kroeber's review of the environmental relations of the native cultures of North America and of the historic relations of the culture areas, the two chief objectives of the work, as he formulates them, is mainly an endeavor to examine how far and why physiographic, climatic, vegetational, ethnic and cultural classifications of North America correspond or fail to correspond. There is no "relapse toward the old environmentalism which believed it could find the causes of culture in environment." The emphasis is on cultural wholes, and not, except incidentally, on specific cultural elements or complexes.

The topics covered, with some of the more important results and findings, are as follows:

a. Tribal areas (pp. 8–12), with a new map of the native tribes of North America.

b. Vegetation areas (pp. 13–19), with four maps, on transparent paper to allow of superimposition for comparison, after Harshberger, Shelford, Shantz and Zon, and Do-

minion of Canada National Development Bureau (F. C. C. Lynch), and Shreve, Malte, Kellogg and Sanders. Correspondences are less definite east of the Mississippi than elsewhere.

c. Culture areas (pp. 20–130), with map. In classifying them, "special attention is given to geographical and ecological factors," "the cultures are treated as historical nonequivalents," "centers or climaxes of culture are defined as sharply as possible," and "relations of subordination between and within cultures being sought and expressed, the number of basic areas is fewer, and of specific ones greater, than it has been customary to recognize." The continent is divided into eighty-four areas, grouped into six major areas,—Arctic Coast, Northwest Coast, Southwest, Intermediate and Intermountain, East and North, and Mexico and Central America: each of which, with the partial exception of the fourth, is believed to represent a substantial unit of historical development or of a prevailingly characteristic current of culture.

d. Population (pp. 131–181), with estimated populations for each area and linguistic stock, and with densities. Figures, where given, for areas south of the Mexican border are usually more hypothetical. For the continent as a whole north of Mexico, in non-agricultural regions coastal populational density was from five to ten times greater than in the interior; in agricultural regions, probably at least twice as great. Agriculture did not by itself necessarily increase density.

e. Physiographic areas (pp. 182–204), with map, after Dowling, Fenneman and Thayer. The accord of culture and physiography was much stronger on the Pacific coast than on the rest of the continent.

f. Relations of environmental and culture factors (pp. 205–217), with a summary of the more striking cases noted of agreement between culture and natural areas, and with some discussion of the role of climate, water, and drainage in culture conditioning.

The work concludes with two very suggestive chapters: the first recapitulating the environmental factors in North American agriculture; the second, outlining the concept of cultural intensity and climax as applied to North America.

The present reviewer deems it wiser to confine himself to the analysis of major content and major conclusions. A critical review, to be fair and adequate, would have to run into scores of pages. Each specialist on this or that section of the continent will no doubt have his critiques and reservations to make, for the field covered is enormous and much that Kroeber writes is avowedly proposed, not as demonstrated verity, but as probable inference, at times even as verging on the conjectural. But the total picture and the new approach are arresting. The work represents a vast synthesis, one that could be hopefully attempted only by one with Kroeber's many-sided competence, ecumenical outlook, broad control of facts, wholesome balance, and large anthropological vision. If its publication does naught else than speed up anthropological research on the environmental factors in culture, suggest new techniques of attack on the problem, and stimulate more intensive areal or tribal environmental studies, the author will no doubt feel that the job he has had the courage and initiative to tackle has been worth while, and anthropological science will be profoundly indebted to him.

JOHN M. COOPER
The Catholic University of America

Portfolio of Prehistoric Hohokam Pottery Designs. ODD S. HALSETH, editor. (1 p. explanatory statement, 4 pp. archaeological introduction, 52 pls. in color. Pueblo Grande Laboratory, Phoenix, Arizona, 1941.)

It is coming to be more and more recognized that art, outside of its esthetic value, is a potent tool for the anthropologist. Once chiefly the preoccupation of armchair theo-

rists, the art of native peoples is now recognized to be two much more important things: a source of inspiration to the artists of our own time; and a means of raveling out the tangled story of man's past. The designs created by aboriginal man constitute a body of recorded material which, if interpreted knowingly after profound study, can help indicate tribal origins and migrations, inter-racial and inter-tribal influences, and the growth and decline of cultures. Since the instinct for art is deep-seated in all human beings, its visible manifestations reflect, as in a mirror, the manifold changes and trends so characteristic of our unstable race.

One great difficulty in making a deep study of such matters is the fact that native arts are placed on material objects, often bulky or fragile, so that an analysis of the designs is not a simple problem. Hence these publications which print out for us on easily stored and examined sheets various kinds of designs are always welcome. The number of such publications is relatively limited, and any addition to this number is a cause for satisfaction. To this group belongs the portfolio now under consideration.

The portfolio contains 52 plates, each 10 by 14 inches. The colored designs are about 9 by 5 inches, leaving a wide margin. The designs are printed by the silk screen process and are carefully and accurately made as regards color and draughtsmanship. They were produced under the direction of Odd S. Halseth by the Federal Art Project of the Arizona Work Projects Administration. Halseth has provided an explanatory sheet setting forth the plan and purpose of the sheet, that is, to give a cross-section of Hohokam pottery designs through the period of occupation by that people of the Salt River Valley. The three earliest phases of the Pioneer period are not shown because they are not found on the Salt; and the Santan phase of the Sedentary period is not represented because in the area it is almost impossible to distinguish it from Sacaton. The number of sheets assigned to each period is somewhat proportionate to the amount of pottery from each which is found along the Salt. In addition to the introductory sheet, there is one summing up the history of the Hohokam.

Five of the sheets illustrate characteristic pottery shapes and design elements of the various periods. The designs are selected to give a good idea of the range in design styles and constitute a synoptic series of the changes in design through some hundreds of years. Halseth is to be congratulated on the successful termination of this laborious project and should be urged to produce more of the same.

F. H. Douglas
Denver Art Museum

Distribution and Significance of Ball Courts in the Southwest. Chester S. Chard. Introduction by J. O. Brew. (Papers, Vol. 1, No. 2. The Excavators Club, Cambridge, Mass.)

This paper is number two in a series of three published by the year old Excavators Club of Cambridge, membership of which is composed of students in archaeology at Harvard and Radcliffe, members of the staff of Peabody Museum, members of the Department of Anthropology at Harvard University, and certain outsiders. The twofold objective is to conduct field work and to issue publications. The first of the latter already out is a report on excavations; the last two are based on library research.

This paper, by the editor of the club, is based upon a thorough perusal of the rather meager literature dealing with Ball Courts in the Southwest, a subject which unfortunately is still so new to Southwestern archaeologists that many are more concerned with survey and identification than evaluation of finds. Early in the paper the two types, "Snaketown," the larger, and "Casa Grande," identified and characterized first by Haury, are once more pointed out and accepted as types. An estimate of the number of

ball courts, based upon published reports, is then made. The suggested total of seventy, in so far as present knowledge is concerned, may be too many, or not enough.

Reaching his conclusions on the relatively small amount of factual knowledge available, though the comprehensive bibliography gives a quite different impression, Mr. Chard concludes that all of the ball courts are of one of the two types mentioned above, and that they all represent a related game. Further speculation leads to the decision that all were used as ball courts for a ball game, but that each court type could represent a different type of ball game.

The question of the source of the game then intrigues him, and he concludes that the trait most likely came into the Southwest with a migration, rather than as a diffusing idea. On the basis of present information, he considers that a source intermediate between the Southwest and Mexico is indicated. As a last comment, he makes the suggestion that further work in northern Mexico is advisable.

Nowhere in this paper are there any startlingly original concepts. It stands as a good summary and evaluation of the problem as based on the literature. The value of this perhaps unduly critical paper lies in the fact that such a summary at any stage in research is an aid in pointing directions most profitable to workers, and in giving a summarized background to interested, but otherwise uninformed, individuals.

J. C. McGregor
Museum of Northern Arizona
Flagstaff, Arizona

The Indians of the Western Great Lakes, 1615–1760. W. Vernon Kinietz. (Occasional Contributions from the Museum of Anthropology of the University of Michigan, No. 10, 427 pp., 1 map. Ann Arbor: University of Michigan Press, 1940.)

This is an excellent library study of documents relating primarily to the Indians of Michigan during the contact period. In the first and major part of the book, Mr. Kinietz has exhumed, selected, and organized both historical and ethnological data concerning five Woodland tribes: the Huron, Miami, Ottawa, Potawatomi, and Chippewa. The information gleaned from the early accounts (written mainly by French missionaries, traders, and administration officers) is organized under such headings as historical sketch, characteristics, dress and ornament, economic life, and religion. Such information was, of course, more complete for some tribes than for others. The account of the Huron, for example, is fairly detailed, occupying about a half of this portion of the book and contains such things as Sagard's excellent descriptions of agriculture, fishing, marriage rites, medical practices, and burial customs; Champlain's account of war and dress; and Brebœuf's fine description of the political system. The account of the Potawatomi, on the other hand, is done in nine pages and is extremely sketchy.

The author's selected bibliography is particularly enlightening, due to the addition of critical notes and evaluations of the various writers. This analysis, giving the occupation and point of view from which these men wrote, along with the amount of contact they had with the tribes discussed, not only shows Mr. Kinietz's intimate knowledge of the men and their times, but also provides an excellent guide through the nebulous ethnological literature of the period. Thus, he accounts for his infrequent use of such well-known writers as Lafitau and Charlevoix on the ground that they borrowed much from earlier writers and actually were eye-witnesses of little, and discounts the value of "A New Discovery" because of the inordinate imagination of Hennepin. In general, Mr. Kinietz's reputation as a critical user of reference material is sustained throughout the book.

The second portion of the book is an appendix entitled "Memoir Concerning the

Different Nations of North America" by Antoine Denis Raudot. This is a translation of some of the letters of Raudot, an intendant of Canada, written at Quebec in 1709–10. The value of this work is somewhat lessened by the fact that in some of the descriptions tribal names are lacking and also by the fact that Raudot depended upon other accounts for his descriptions of the Indians of the Western Great Lakes which he never visited. However, there is some good ethnological information in it, especially concerning the little-known Illinois. The accounts of Illinois jugglery and war customs alone make the translation worth while.

One finds it difficult to criticize such a careful and critical piece of work as this. The title is somewhat misleading inasmuch as the major part of the book is devoted exclusively to the Indians of Michigan. However, the reviewer understands this to be the first volume of a series which will ultimately encompass other tribal groups in the Western Great Lakes region. Certainly making this information available through translation and synthesis is in itself a noteworthy contribution, and more work of the kind is needed to further clarify the picture in this area.

ROBERT E. RITZENTHALER
Milwaukee Public Museum

"Relationships of an Early Indian Cranial Series from Louisiana." HENRY B. COLLINS, JR. *Journal of the Washington Academy of Sciences*, Vol. 31, No. 4, April 15, 1941, pp. 145–155.

This brief paper ought to be of considerable interest to archaeologists of the southeastern United States, as it takes up the physical relationships of a cranial series associated with the relatively early Tchefuncte cultural manifestation. The raw data of this series from the Copell place on Pecan Island were published by Hrdlička in the last number of his *Catalog of Human Crania in the United States National Museum Collections* (Proceedings United States National Museum, Vol. 87, pp. 434–436 and 439–441, 1940), but the figures were averaged in with those of other series associated with different cultures of Louisiana ranging from the earliest to that of the historic Caddo. Collins separates out the Tchefuncte series and thus makes it available for detailed comparisons.

The method of comparison—averaging of differences of the means of measurements and of indices, disregarding sign—may be criticized, but aside from that, Collins presents some very interesting results. The indicial similarity associated with considerable metrical divergence (except for the two orbital dimensions) between the Tchefuncte and Indian Knoll series is remarkable and one can't but agree with Collins, that aside from the size factor involved, there is a basic relationship between the two groups. It may be pointed out that a similar relationship exists between the Indian Knoll Kentucky shell heap series and a late Woodland (Sylvid or Algonkin type) series from central Illinois. The results of some of the other comparisons have to be accepted with caution, as the Tennessee, Illinois, Virginia, and New York series of Hrdlička are mixed ones and can not form valid groups for comparisons of this nature. Thus, if I take two of my Illinois series: the Spoon River focus series (Centralid or Gulf type) and the Maples Mills focus series (Sylvid or Algonkin type) and average the mean differences between that pooled series and that from the Copell place I get about 2.00 for the measurements and 1.39 for the indices, both values close to Collins' 2.16 and 1.36, respectively. If, on the other hand, each of the central Illinois series is compared to the Copell series the differences are of a larger magnitude.

GEORG NEUMANN
Museum of Anthropology
University of Michigan

Ethnographic Bibliography of North America. GEORGE P. MURDOCK. (Yale Anthropological Series, Vol. I, Yale University Press, 1941.)

This volume is one of the most important aids to research which has appeared in many years. The published material on North American Anthropology has become so vast that in compiling working bibliographies the task of selecting significant works has become fully as important as that of discovering titles. Dr. Murdock is to be complimented upon the patience with which he has consulted thousands of titles and the skill with which he has chosen for listing the really pertinent books and articles dealing with no less than 253 Indian tribes north of Mexico. His map showing the locations of the various tribes, including the Mexican, at the time of their first contact with Europeans, is also by far the best which has so far appeared.

Although the great majority of the publications selected deal with ethnography, the more important archaeological and physical anthropological works for each tribe have also been included. He promises that after a few years a supplement will be published in which "the Mexican area will be included, the general North American appendix expanded, and the archaeological, linguistic and physical anthropological literature covered as exhaustively as the ethnographical." Is it to be hoped that this will not be long delayed.

RALPH LINTON
Columbia University

Classification and Description of Indian Stone Artifacts. E. B. RENAUD. (Gunnison: Colorado Archaeological Society, March, 1941. $.50.)

Dr. Renaud's stone artifact classification is "an attempt at logically grouping the most common and important types according to a simple principle, that of the primary needs of man, especially in a stage of rather simple culture." This more or less follows a basis for classification set up by J. D. McGuire,[1] except for Renaud's omission of "abrading" as a natural function or "elementary need." The idea is a good one and helps to make the artifact names mean more to the layman.

Since Dr. Renaud's study is of "Indian Stone Artifacts," however, it seems unnecessary and confusing to include in the classification European terms and implement types which have no place in American archaeology, and yet are not kept separate.

The arrowpoint classification presented by Dr. Renaud is simple and usable and it will undoubtedly be employed to advantage by both the amateur and the professional. This classification should be given careful consideration as a system for naming types by the Committee on Stone Artifact Terminology of the Society for American Archaeology.

H. HOLMES ELLIS
Ohio State Museum

---

[1] McGuire, J. D. "Classification and Development of Primitive Implements." *American Anthropologist*, O. S., Vol. 9, No. 7 (1896), p. 233.

SOME RECENT PUBLICATIONS

UPPER NORTH AMERICA

Adams, Lee, "Rockhouse Cave" (*Missouri Archaeologist* 7, No. 2. pp. 18–27, 5 figs. Columbia, 1941).

Allen, Charles W., "Red Cloud and the U. S. Flag" (*Nebraska History* 22, No. 1. pp. 77–88. Lincoln, 1942).

Analysis of Copper Bead from Indian Grave, Holyoke, Massachusetts. (*Massachusetts Archaeological Society Bulletin* 3, No. 2. pp. 18–19. Boston: The Society, 1942).

Baker, Frank C., James B. Griffin, Richard G. Morgan, Georg K. Neumann and Jay L. B. Taylor, *Contributions to the Archaeology of the Illinois River Valley.* (American Philosophical Society Transactions N.S., 32, Pt. 1. 208 pp., 68 plates, tables, figs. Philadelphia: The Society, 1941).

Baldwin, Gordon C., "Archaeology in Southern Nevada" (*The Kiva* 7, No. 4. pp. 13–16. Tucson: Arizona State Museum, 1942).

Barbeau, Marius, "Backgrounds in Canadian Art" (*Royal Society of Canada Transactions*, Section II, 3rd series, 35. pp. 29–39, 12 plates. Toronto: University of Toronto Press, 1941).

Bartlett, Katharine, "Notes Upon a Primitive Stone Industry of the Little Colorado Valley" (*Plateau* 14, No. 3. pp. 37–41, illus. Flagstaff: Museum of Northern Arizona, 1942).

Bascom, William R., "Possible Application of Kite Photography to Archaeology and Ethnology" (*Illinois State Academy of Science Transactions* 34, No. 2. pp. 62–63. Springfield: The Academy, 1941).

Bell, Willis H. and Edward F. Castetter, *The Utilisation of Yucca, Sotol, and Beargrass by the Aborigines in the American Southwest* (University of New Mexico Bulletin, Ethnobiological Studies in the American Southwest 7. 74 pp. Albuquerque: University of New Mexico, 1941).

Bentham, Robert and Diamond Jenness, "Eskimo Remains in S.E. Ellesmere Island" (*Royal Society of Canada Transactions*, Section II, 3rd series, 35. pp. 41–55, 6 plates. Toronto: University of Toronto Press, 1941).

Boas, Franz and Ella Deloria, *Dakota Grammer* (National Academy of Sciences Memoir 23, No. 2. 183 pp. Washington, 1941).

Brown, Charles E., compiler, *Museums, Caves and Strange Places in Wisconsin* (5 pp., mimeographed. Madison: Wisconsin Conservation Dept., 1941).

Caldwell, Joseph, Catherine McCann and Frederick Hulse, *Irene Mound Site, Chatham County, Georgia* (84 pp., 25 plates, 33 figs. Athens: University of Georgia Press, 1941).

Chambliss, Charles E., "The Botany and History of *Zizania aquatica* L. ('wild rice')" (*Smithsonian Annual Report for 1940.* pp. 369–382, 9 plates. Washington, 1941).

Chelf, Carl, "A Greenstone Head from Travis County, Texas" (*Texas Archaeological & Paleontological Society Bulletin* 13. pp. 58–62, 1 plate. Abilene: The Society, 1941).

Chesky, Jane, "Indian Music of the Southwest" (*The Kiva* 7, No. 3. pp. 9–12. Tucson: Arizona State Museum, 1941).

Colton, Harold S., "Hopi Number Systems" (*Plateau* 14, No. 2. pp. 33–36. Flagstaff: Museum of Northern Arizona, 1941).

Cummings, Byron, "Segazlin Mesa Ruins" (*The Kiva* 7, No. 1. 4 pp., illus. Tucson: Arizona State Museum, 1941).

DeJarnette, David L. and Steve B. Wimberly, *The Bessemer Site, Excavation of Three Mounds and Surrounding Village Areas near Bessemer, Alabama* (Museum Paper 17. 122 pp., 73 figs. University, Alabama: Geological Survey of Alabama, 1941).

Delaware Archaeological Society, *Museum Inventories of Delaware Artifacts* (Paper No. 4. 18 pp. mimeographed. 1941).

Dickinson, S. D., "Certain Vessels from the Clements Place, An Historic Caddo Site" (*Texas Archaeological & Paleontological Society Bulletin* 13. pp. 117–132, 3 plates. Abilene: The Society, 1941).

Douglas, F. H., "An Hidatsa Burden Basket" (*Denver Art Museum Material Culture Notes* No. 14. pp. 60–65, illus. December, 1941).

Douglas, F. H., "A Northern Arapaho Quilled Cradle" (*Denver Art Museum Material Culture Notes* No. 13 pp. 53–59, illus. December, 1941).

Douglas, F. H., "An Ottawa Cedar Bark Mat" (*Denver Art Museum Material Culture Notes* No. 16. illus. December, 1941).

Douglas, F. H., "The Creek Baskets" (*Denver Art Museum Material Culture Notes* No. 15. pp. 66–69, illus. December, 1941).

Douglass, A. E., "Notes on the Technique of Tree-Ring Analysis, III" (*Tree-Ring Bulletin* 8, No. 2. pp. 10–16. Tucson: The Society, 1941).

Drucker, Philip, *Culture Element Distributions: XVII Yuman-Piman* (Anthropological Records 6, No. 3. pp. 91–230. Berkeley: University of California Press, 1941).

Dutton, Bertha P., "Mississippi Tree-ring Dating" (*El Palacio* 49, No. 1. pp. 7–13. Sante Fe, 1942).

Eckstorm, Fannie Hardy, *Indian Place-Names of the Penobscot Valley and the Maine Coast* (University of Maine Studies 2nd series, No. 55. xxix, 272 pp., maps. Orono, 1941).

Fairbanks, Charles H., "Palisaded Towns" (*The Regional Review, National Park Service, Region One, Richmond*. pp. 3–8. May–June, 1941).

Fenton, William N., "Masked Medicine Societies of the Iroquois" (*Smithsonian Annual Report for 1940*. pp. 397–429, 25 plates. Washington, 1941).

Fulton, William Shirley, *A Ceremonial Cave in the Winchester Mountains, Arizona* (*Amerind Foundation, Inc.* No. 2. 35 pp., 13 plates, 8 figs. Dragoon, Arizona: The Foundation, 1941).

Gabel, Norman E., "The Skeletal Remains of the Bear Ruin" (*University of Arizona Bulletin* 11, No. 4. pp. 132–138. Tucson, 1941).

Gillin, John, *Archaeological Investigations in Central Utah, Joint Expedition of the University of Utah and the Peabody Museum, Harvard University* (Peabody Museum Papers 17, No. 2, 50 pp., 9 plates. Cambridge: The Museum, 1941).

Goodwin, Grenville, *The Social Organization of the Western Apache* (701 pp., 10 plates, 7 maps, 4 figs. Chicago: University of Chicago Press, 1942).

Griffin, James B., *Additional Hopewell Material from Illinois* (Prehistory Research Series 2, No. 3. pp. 165–223, 16 plates. Indianapolis: Indiana Historical Society, 1941).

Griffin, James B., "Report on Pottery from the St. Louis Area" (*Missouri Archaeologist* 7, No. 2. pp. 1–17, 2 plates. Columbia, Missouri, 1941).

Haas, Mary R., "Noun Incorporation in the Muskogean Languages" (*Language* 17, No. 2. pp. 311–315, 1941).

Haas, Mary R., "A Popular Etymology in Muskogee" (*Language* 17, No. 4. pp. 340–341, 1941).

Hallowell, A. I., "Spirits of the Dead in Saulteaux Life and Thought" (*Royal Anthropological Institute Journal* 70, Pt. 2. pp. 29–51. London, 1940).

Harrington, John P., *Culture Element Distributions: XIX Central California Coast* (Anthropological Records 7, No. 1. 46 pp. Berkeley: University of California press, 1942).

Harrington, M. R., "Indian Tribes of the Plains" (*Masterkey* 15, No. 5–6. pp. 168–177, 213–220. 16, No. 1. pp. 5–15. Los Angeles: Southwest Museum, 1941–42).

Harrington, M. R., "Our Oldest Bone Implement" (*Masterkey* 15, No. 6. pp. 232–233, illus. Los Angeles: Southwest Museum, 1941).

Hatt, Marcelle R., *Basketry of the North American Indian* (11 pp. Bloomfield Hills, Michigan: Cranbrook Institute of Science, 1941).

Haury, Emil W., *Excavations in the Forestdale Valley, East-Central Arizona* (University of Arizona Bulletin 11, No. 4. 147 pp., 12 plates. Tucson, 1940).

Heizer, Robert F., "Aboriginal Trade Between the Southwest and California" (*Masterkey* 15, No. 5. pp. 185–188. Los Angeles: Southwest Museum, 1941).

Hill, A. T. and George Metcalf, "A Site of the Dismal River Aspect in Chase County, Nebraska" (*Nebraska History* 22, No. 2. pp. 155–215. 11 plates. Lincoln: Nebraska State Historical Society, 1941).

Hofmann, Arthur M., "A Stone Pavement at Andover, Massachusetts" (*Massachusetts Archaeological Society Bulletin* 3, No. 2. pp. 25–26, illus. Boston: The Society, 1942).

Holden, W. C. "McKenzie Cave and Adjacent Sites in Pecos County" (*Texas Archaeological & Paleontological Society Bulletin* 13. pp. 46–57, 3 plates. Abilene: The Society, 1941).

Howe, Henry F., "The Sources of New England Indian History Prior to 1620" (*Massachusetts Archaeological Society Bulletin* 3, No. 2. pp. 19–23. Boston: The Society, 1942).

Howes, William J., "The Problematical Thin Shell Stone Tubes" (*Massachusetts Archaeological Society Bulletin* 3, No. 2. pp. 11–17, illus. Boston: The Society, 1942).

Hrdlička, Aleš, "Artifacts on Human and Seal Skulls from Kodiak Island" (*American Journal of Physical Anthropology* 28, No. 4. pp. 411–418, 2 plates. Philadelphia: Wistar Institute, 1941).

Hrdlička, Aleš, "Diseases of and Artifacts on Skulls and Bones from Kodiak Island" (*Smithsonian Publication* 3640. Washington, 1941).

Ives, Ronald L., "A Cultural Hiatus in the Rocky Mountain Region" (*Southwestern Lore* 7, No. 3. pp. 42–46. Gunnison: Colorado Archaeological Society, 1941).

Jackson, A. T., "Pendants and Their Uses" (*Texas Archaeological & Paleontological Society Bulletin* 13. pp. 9–45. 5 plates. Abilene: The Society, 1941).

Jenness, Diamond, "Prehistoric Culture Waves from Asia to America" (*Smithsonian Annual Report for 1940*. pp. 383–396. Washington, 1941).

Jennings, Jesse D., "Chickasaw and Earlier Indian Cultures of Northeast Mississippi" (*Journal of Mississippi History* 3, No. 3. pp. 155–226, 10 plates. Jackson: The Society, 1941).

Kirkland, Forrest, "Petroglyphs of the Abilene District" (*Texas Archaeological & Paleontological Society Bulletin* 13. pp. 63–76, 3 plates. Abilene: The Society, 1941).

Knowles, Nathaniel, "Cultural Stratification on the Trenton Bluff" (*American Anthropologist* N.S. 43, No. 4, Pt. 1. pp. 610–616. Menasha, 1941).

Leguna, Frederica de, "Eskimo Lamps and Pots" (*Royal Anthropological Institute Journal* 70, Pt. 2. pp. 53–76, 2 plates, 9 figs. London, 1940).

Leh, Leonard L., "Archaeology and the Amateur" (*Southwestern Lore* 7. No. 3. pp. 37–42. Gunnison: Colorado Archaeological Society, 1941).

Leighton, Alexander and Dorothea C., "Elements of Psychotherapy in Navaho Religion" (*Psychiatry* 4, No. 4. pp. 515–523, 1941).

Lenski, Lois, *Indian Captive: The Story of Mary Jamison.* (270 pp., illus. New York: Frederick A. Stokes Co., 1941).

Lismer, Marjorie, *Seneca Splint Basketry* (Indian Handicrafts 4. 39 pp., 15 plates, 11 figs. Chilocco, Oklahoma, 1941).

Llewellyn, Karl N. and E. Adamson Hoebel, *The Cheyenne Way* (360 pp., 8 plates. Norman: University of Oklahoma Press, 1941).

Lowie, Robert H., *The Crow Language, Grammatical Sketch and Analyzed Text* (University of California Publications in American Archaeology & Ethnology 39, No. 1. pp. 1–142. Berkeley: University of California Press, 1941).

Macgregor, Frances Cooke, *Twentieth Century Indians.* (142 pp., map, illus. New York: G. P. Putnam's Sons, 1941).

Martin, Paul S., "Expedition Discovers New Prehistoric House Type" (*Field Museum News* 12, No. 11. pp. 4–5. Chicago, 1941).

Massachusetts Archaeological Society, *A Preliminary Bibliography of the Archaeology of the New England Indians* (Bulletin 3, No. 1. 10 pp. Cambridge: The Society, 1941).

McClintock, Walter, "The Thunderbird Myth" (*Masterkey* 15, No. 5 & 6. pp. 164–168, 224–227. Los Angeles: Southwest Museum, 1941).

McGregor, John C., *Southwestern Archaeology* (413 pp., illus. New York: John Wiley & Sons, 1941. $5.00).

Morgan, Richard G., "A Hopewell Sculptured Head" (*Ohio State Archaeological & Historical Quarterly* 50, No. 4. pp. 384–387. Columbus: The Society, 1941).

Morris, Earl H. and Robert F. Burgh, *Anasazi Basketry, Basket Maker II Through Pueblo III; A Study Based on Specimens from the San Juan River Country* (Carnegie Institution of Washington Publication 533. 66 pp., 43 figs. Washington, 1941).

Murdock, George Peter, *Ethnographic Bibliography of North America* (Yale Anthropological Studies Vol. 1. 168 pp. New Haven: Yale University Press, 1941).

Opler, Morris E., *An Apache Life-Way; The Economic, Social, and Religious Institutions of the Chiricahua Indians.* (500 pp., 16 plates, 2 figs. Chicago: University of Chicago Press, 1941).

Osborne, Douglas, "Archeological Reconnaissance in Western Utah and Nevada, 1939" (*Masterkey* 15, No. 5. pp. 189–193. Los Angeles: Southwest Museum, 1941).

Quimby, George I., Jr., *The Goodall Focus; An Analysis of Ten Hopewellian Components in Michigan and Indiana* (Prehistory Research Series 2, No. 2. pp. 63–161, 17 plates. Indianapolis: Indiana Historical Society, 1941).

Rainey, Froelich, "Native Economy and Survival in Arctic Alaska" (*Applied Anthropology* 1, No. 1. pp. 9–14, map. Boston, 1941).

Ray, Cyrus N., "Various Types of Clear Fork Gouges" (*Texas Archaeological & Paleontological Society Bulletin* 13. pp. 152–162, 2 plates. Abilene: The Society, 1941).

Renaud, E. B., Indian Stone Enclosures of Colorado and New Mexico (*University of Denver Department of Anthropology, Archaeological Series* 2nd Paper. 48 pp., 6 figs. Denver, 1942. 65¢).

Rogers, Spencer L., "Some Ethnological Findings from the Joseph H. Jessop Archery Collection" (*San Diego Museum Bulletin* 6, no. 2. pp. 1–8. San Diego, 1941).

Sayles, E. B., "Infant Burial in Carrying Basket" (*Texas Archaeological & Paleontological Society Bulletin* 13. pp. 77–87, 2 plates. Abilene: The Society, 1941).

Sayles, E. B., "Some Texas Cave Dweller Artifacts" (*Texas Archaeological & Paleontological Society Bulletin* 13. pp. 163–168, 1 plate. Abilene: The Society, 1941).

Schaeffer, Claude E., "A Stone Pipe Bowl from Northern Pennsylvania" (*Pennsylvania Archaeologist* 11, No. 3. pp. 53–56, 3 figs. Milton, 1941).

Schoenbeck, E., "Cultural Objects of Clear Lake Village Site" (*Illinois State Academy of Science Transactions* 34, No. 2. pp. 65–66. Springfield, Illinois: The Academy, 1941).

Setzler, Frank M. and Jesse D. Jennings, *Peachtree Mound and Village Site, Cherokee County North Carolina. With Appendix, Skeletal Remains from the Peachtree Site, North Carolina,* by T. D. Stewart. (U. S. Bureau of American Ethnology Bulletin 131. 103 pp., 50 plates, 12 figs. Washington, 1941).

Shetrone, Henry Clyde, "The Ohio Aborigines." (*Reprinted from The History of the State of Ohio* v. 1. pp. 34–59. Columbus: Ohio State Archaeological & Historical Society, 1940).

Shippee, J. M., "Hopewellian and Middle Mississippi Remains from the Kansas City Area" (*Missouri Archaeologist* 7, No. 2. pp. 29–32, 4 figs. Columbia: State Archaeological Society, 1941).

Sleight, Frederick W., "A Preview of Archaeology in the Ten Thousand Islands of Florica" (*The Kiva* 7, No. 2. Pp. 5–8. Tucson: Arizona State Museum, 1941).

Smith, Elmer R., "The Archaeology of Deadman Cave, Utah" (*Bulletin of the University of Utah* 32, No. 4. 43 pp., 10 plates. Salt Lake City: University of Utah, 1941).

Smith, Elmer R., "An Indian Burial, A Barbed Bone 'Projectile Point,' and Accompanying Artifacts from Bear Lake" (*University of Utah, Museum of Anthropology, Archaeology & Ethnology Papers* No. 6. 6 pp. Sale Lake City, 1942).

Smith, Victor J., "Some Unusual Basketry from the Big Bend" (*Texas Archaeological & Paleontological Society Bulletin* 13. Pp. 133–151, 5 plates. Abilene: The Society, 1941).

Speck, Frank G., and Loren C. Eiseley, "Montagnais-Naskapi Bands and Family Hunting Districts of the Central and Southeastern Labrador Peninsula" (*Reprinted from Proceedings of the American Philosophical Society* 85, No. 2. pp. 215–242. January, 1942).

Spoehr, Alexander, *Kinship System of the Seminole* (Field Museum Anthropological Series 33, No. 2. pp. 31–113, 11 figs. Chicago, 1942).

Stallings, W. S., Jr., "A Basketmaker II Date from Cave du Pont, Utah" (*Tree-Ring Bulletin* 8, No. 1. pp. 3–6. Tucson: The Society, 1941).

Steen, Charlie R., and Volney H. Jones, "Prehistoric Lima Beans in the Southwest" (*El Palacio* 48, No. 9. pp. 197–203. Santa Fe, 1941).

Stewart, Omer C., *Culture Element Distributions: XVIII Ute-Southern Paiute* (Anthropological Records 6, No. 4. pp. 231–356. Berkeley: University of California Press, 1942).

Stewart, T. D., "Skeletal Remains from the Buena Vista Sites, California" (*U. S. Bureau of American Ethnology Bulletin* 130. pp. 172–188. Washington, 1941).

Thomas, Trevor, "Masks Grim and Gay" (*Museums Journal*. pp. 152–153. Oct. 1941).

Tucker, Sara Jones, "Archival Materials for the Anthropologist in the National Archives, Washington, D. C." (*American Anthropologist* N.S. 43, No. 4, Pt. 1. pp. 617–644. Menasha, 1941).

Voegelin, C. F., "North American Indian Languages Still Spoken and Their Genetic Relationships" (*Reprinted from Language, Culture, and Personality*. pp. 15–40. Menasha, 1941).

Webb, C. H., and Monroe Dodd, Jr., "Pottery Types from the Belcher Mound Site" (*Texas Archaeological & Paleontological Society Bulletin* 13. pp. 88–116, 4 plates. Abilene: The Society, 1941).

Webb, William S., *The Morgan Stone Mound, Site 15 Bath County Kentucky* (University of Kentucky Reports in Anthropology & Archaeology 5, No. 3. pp. 223–291, illus. Lexington, 1941).

Webb, William S., *Mt. Horeb Earthworks, Site 1 and The Drake Mound, Site 11 Fayette County, Kentucky* (University of Kentucky Reports in Anthropology & Archaeology 5, No. 2. pp. 139–218, illus. Lexington, 1941).

Wedel, Waldo R., *Archaeological Remains in Central Kansas and Their Possible Bearing on the Location of Quivira* (Smithsonian Miscellaneous Collections 101, No. 7. 24 pp., 10 plates. Washington, 1942).

Whiteford, G. L., *Indian Archaeology in Saline County, Kansas* (24 pp., illus. Salina, Kansas: Consolidated Paper & Stationery Co., 1941).

Whitford, A. C., *Textile Fibers Used in Eastern Aboriginal North America* (American Museum of Natural History Anthropological Papers 38, Pt. 1. 22 pp., New York: The Museum, 1941).

Woodward, Arthur, "Hohokam Mosaic Mirrors" (*Quarterly* 1, No. 4. pp. 7–11, 5 plates. Los Angeles: County Museum, 1941).

Woodward, Arthur, "Indian Maid Jewelry" (*Masterkey* 15, Ng. 6. pp. 221–224, illus. Los Angeles: Southwest Museum, 1941).

Wray, Donald E., "Middle Mississippian Grit Tempered Ware" (*Illinois State Academy of Science Transactions* 34, No. 2. pp. 66–67. Springfield: The Academy, 1941).

MIDDLE AMERICA

Boletin del Archivo General del Gobierno 6, No. 4. (pp. 255–448. Guatemala, 1941).

Collier, John, "Nuevos Conceptos Sobre la Unidad Indigena" (*America Indigena* 1, No. 1. pp. 11–16. Mexico City: Inter-American Indian Institute, 1941).

Cordry, Donald Bush and Dorothy M., *Costumes and Weaving of the Zoque Indians of Chiapas, Mexico* (Southwest Museum Papers No. 15. 130 pp., 40 figs., 23 plates. Los Angeles: Southwest Museum, 1941).

Dietschy, Hans, "Zwei altmexikanische Steinbilder von Sonnengöttern" (*Ethnos* 6, Nos. 1–2. pp. 75–95, 4 figs. Stockholm: State Ethnographic Museum, 1941).

Dossick, Jesse J., "Bibliography of Mexicana Written in English During the Year 1939 (750 items)" (*Mexicana Review* 1, No. 1. pp. 7–34. New York, 1940).

Foster, George M., Jr., "Notes on the Populcca of Veracruz" (*Institute Panamericano de Geografia e Historia* 51. 41 pp., 29 figs. Mexico City, 1940).

Mason, J. Alden, "Gold from the Grave" (*Scientific American* 165, No. 5. pp. 261–263, illus. New York, 1941).

Olen, Leonard and G. P. Loomis, *Culture of a Contemporary Rural Community, El Cerrito, Mexico* (Rural Life Studies 1. 72 pp., 20 figs. U. S. Dept. of Agriculture, 1941).

Redfield, Robert, *The Folk Culture of Yucatan* (xxiii, 416 pp., 12 figs., 6 plates. Chicago: University of Chicago Press, 1941).

Richter, Amy, "Twenty Centuries of Mexican Art and Music" (*Mexicana Review* 1, No. 1. pp. 3–6. New York, 1940).

Stone, Doris, *Archaeology of the North Coast of Honduras* (Peabody Museum Memoir 9, No. 1. 103 pp., 99 illus. Cambridge: The Museum, 1941).

Thompson, J. Eric S., "The Prototype of the Mexican Codices Telleriano-Remensis and Vaticanus A" (*Notes on Middle American Archaeology & Ethnology* 6. pp. 24–26. Carnegie Institution of Washington, 1941).

SOUTH AMERICA

Aparicio, Francisco de et al, *Los Aborigines de Santiago del Estero* (Relaciones de la Sociedad Argentina de Antropologia 2. 267 pp., illus. Buenos Aires, 1940).

Constanzo, M. de las M., "Restos humanos de Pampa Grande" (*Anales del Instituto de Etnografia Americana* 2. pp. 239–254, 6 figs. Universidad Nacional de Cuyo, 1941).

Ferdon, Edwin N., Jr., "Preliminary Notes on Artifacts from La Libertad, Ecuador" (*El Palacio* 48, No. 9. pp. 204–210. Santa Fe, 1941).

Frenguell, J., "Muevos Datos acera de los 'Hornos' Indigenas" (*Anales del Instituto de Etnografia Americana* 2. pp. 189–207, 1 plate, 6 figs. Universidad Nacional de Cuyo, 1941).

Greslebin, Hector *Arqueografia de la Tamberia del Inca* (27 pp., 17 figs. Buenos Aires: Sociedad Central de Arquitectos, 1940).

Greslebin, Hector, "La Arquitectura Prehispana del Noroeste Argentino" (*Conferencias del Ciclo 1940*. pp. 31–78, 28 figs. Buenos Aires: Comision Nacional de Cultura, 1941).

Henry, Jules, *Jungle People: The Kaingang Tribe of the Headlands of Brazil* (xix, 215 pp., 8 plates, illus. New York: J. J. Augustin, 1941).

La Barre, Weston, "The Uru of the Rio Desaguadero" (*American Anthropologist* N.S. 43, No. 4, Pt. 1. pp. 493–522. Menasha, 1941).

Lozano, Pedro, *Gran Chaco Gualamba* (Universidad Nacional de Tucuman Publicacion 288. xix, 466 pp., map. Tucuman: Instituto de Antropologia, 1941).

Oyarzun, A., "Los Onas o Selknam de la Isla Grande de Tierra del Fuego" (*Anales del Instituto de Etnografia Americana* 2. pp. 9–35, map. Universidad Nacional de Cuyo, 1941).

Radin, Paul, *Indians of South America* (324 pp., illus. Garden City, N. Y.: Doubleday, Doran, 1942).

Rohmeder, Guillermio, "Los Ruinas de 'Las Tamberias de la Pampa Real' en la Sierra de Famatina" (*Revista del Instituto de Antropologia* 2, No. 6. pp. 109–120, 8 figs. Tucuman, 1941).

EARLY MAN

Douglass, A. E., "Age of Forestdale Ruin Excavated in 1939" (*Tree-Ring Bulletin* 8, No. 1. pp. 7–8. Tucson: The Society, 1941).

Fritz, W. C., "A Texas Sandia Point" (*Texas Archaeological & Paleontological Society Bulletin* 13. pp. 168–173, 1 plate. Abilene: The Society, 1941).

Hibben, Frank C., *Evidences of Early Occupation in Sandia Cave, New Mexico, and other Sites in the Sandia-Manzano Region. With Appendix on Correlation of the Deposits of Sandia Cave, New Mexico with the Glacial Chronology* (Smithsonian Miscellaneous Collections 99, No. 23. 64 pp., 15 plates. Washington, 1941).

Hurst, C. T., "A Folsom Location in the San Luis Valley, Colorado" (*Southwestern Lore* 7, No. 2. pp. 31–34, 1 plate, 4 figs. Gunnison, Colorado, 1941).

Lewis, T. M. N. and Madeline Kneberg, *The Prehistory of the Chickamauga Basin in Tennessee* (Tennessee Anthropology Papers No. 1. 42 pp., illus. University of Tennessee, 1941).

Vietzen, Raymond C., *Ancient Man in Northern Ohio* (165 pp., illus. Elyria, Ohio, 1941).

GENERAL

Bishop, Carl Whiting, "The Beginnings of Civilization in Eastern Asia" (*Smithsonian Annual Report for 1940*. pp. 431–445, 10 plates. Washington, 1941).

Brass, L. J., "Stone Age Agriculture in New Guinea" (*Geographical Review* 31, No. 4. pp. 555–569, illus. New York: American Geographical Society, 1941).

Chapple, Eliot Dinsmore and Carleton Stevens Coon, *Principles of Anthropology* (718 pp. New York: Henry Holt & Co., 1942. $3.75).

Cooper, John M., *Temporal Sequence and Marginal Cultures* (Catholic University of America Anthropological Series 10. 69 pp. Washington, 1941. 75¢).

Embree, John F., *Acculturation Among the Japanese of Kona, Hawaii* (American Anthropological Association Memoir No. 59. 162 pp., 16 figs. Menasha, 1941).

Harley, George W., *Notes on the Poro in Liberia* (Papers Peabody Museum 19, No. 2. 36 pp., 14 plates. Cambridge: The Museum, 1941).

Language, Culture, and Personality, Essays in Memory of Edward Sapir; Edited by Leslie Spier, A. Irving Hallowell, Stanley S. Newman (298 pp., plates. Menasha: Sapir Memorial Publication Fund, 1941).

Loeb, Edwin M., "The Social Organizations of Oceania and the American Northwest" (*Proceedings of the Sixth Pacific Congress* 4. pp. 135–139. 1941).

Rainey, Froelich G., *Excavations in the Ft. Liberte Region, Haiti* (Yale University Publications in Anthropology No. 23. 48 pp., 20 figs. New Haven: Yale University Press, 1941).

Romer, Alfred Sherwood, *Man and the Vertebrates, revised edition* (405 pp., illus. Chicago: University of Chicago Press, 1941).

Rouse, Irving, *Culture of the Ft. Liberte Region, Haiti* (Yale University Publications in Anthropology No. 24. 196 pp., 35 plates. New Haven: Yale University Press, 1941).

Salas, A., "Cuestiones de nomenclature Arqueologica" (*Anales del Instituto de Etnografia Americana* 2. pp. 35–43, 4 plates. Universidad Nacional de Cuyo, 1941).

Sieber, Sylvester and Franz H. Mueller, *The Social Life of Primitive Man* (566 pp. St. Louis, Missouri: B. Herder Book Co., 1941).

Stevens, Frank, "Stonehenge: Today and Yesterday" (*Smithsonian Annual Report for 1940.* pp. 447–478, 1 plate. Washington, 1941).

Turner, Ralph, *The Great Cultural Traditions: The Foundations of Civilization.* Vol. I, *The Ancient Cities.* Vol. II, *The Classical Empires* (1333 pp., 51 figs. New York: McGraw-Hill, 1941. $4.00 each vol.).

White, Anne Terry, *Lost Worlds, Adventures in Archaeology* (316 pp., illus. New York: Random House, 1941).

INDEX OF VOLUME VII

ADAMS, ROBERT MCCORMICK and PAUL MUNGER, Fabric Impressions of Pottery from the Elizabeth Herrell Site, Missouri, 166.
Adena Pottery, 344.
Alaska: Rock Paintings, 70; news of, 179, 410.
Aleutian Islands, Some Textiles Specimens, 171.
AMSDEN, CHARLES, review, Report of the Durango, Colorado, Public Library Museum Project of the National Youth Administration, 1936–1940, 85.
ANDREWS, E. WYLLYS, The Inscription on Stela 38, Piedras Negras, El Petén, Guatemala, 364.
ANTLE, H. R., A Southern Oklahoma Copper Ornament, 402.
Archaeology: Direct-Historical Approach in California Archaeology, 98; Direct Historical Approach to Archaeology, 337.
Arctic Area: news of, 179, 410.
Arizona: news of, 79, 183; Plaster Mixing Bowls, 405.
Art: Maya Ornamental, 48.
Artificial Cranial Deformation in the Eastern United States, 306.
Atlatl and an Atlatl Dart from Lassen County, California; Origin and Authenticity, 134.

BACHE, CHARLES, EDGAR B. HOWARD and LINTON SATTERTHWAITE, Preliminary Report on a Buried Yuma Site in Wyoming, 70.
BENNETT, JOHN, "Salt Pans" at the Kincaid Site, 165.
BENNETT, WENDELL C., review, The Maya and Their Neighbors, 197.
BERRY, BREWTON and CARL CHAPMAN, An Oneota Site in Missouri, 290.
Bibliography: California, 141; Honduras, 46, 387, 395; Maya, 63, 395; Mexico, 27; Mogollon Culture, 18; Mounds, 357; Southeastern Area, 311; Southwestern Area, 397.
Black Mesa Black on White, 164.
BREW, JOHN OTIS, review, Archaeological Studies in the La Plata District, Southwestern Colorado and Northwestern New Mexico, 198.
Burnt Rock Mounds of Texas, 319.
BYERS, DOUGLAS S., Concerning Sandia Cave, 408; Fluted Points from Wisconsin, 400; A Further Note on the Squibnocket Cliff Shell Heap, 68.

California: Direct-Historical Approach in California Archaeology, 98; Origin and Authenticity of an Atlatl and an Atlatl Dart from Lassen County, California, 134; news of, 80, 185; Reconnaissance of the Central San Joaquin Valley, 123; Stone Mortars of Contra Costa County, California, 322.
CAMPBELL, T. N., and J. CHARLES KELLEY, What Are the Burnt Rock Mounds of Texas? 319.
Cave Habitation in Vermont, 176.
Ceremonial Bar and Associated Features of Maya Ornamental Art, 48.
CHAPMAN, CARL and BREWTON BERRY, An Oneota Site in Missouri, 290.
Chronological Outline for the Northwest Florida Coast, 232.
CLINE, WALTER, review, Indians of the Americas, 189.
Colorado: news of, 79, 184.
COLTON, HAROLD S., Black Mesa Black on White, 164; review, Anasazi Painted Pottery in Field Museum, 197.
Conjectures on the Independent Development of the Mogollon Culture, 5.
COOPER, JOHN M., review, Cultural and Natural Areas of Native North America, 417.
Copper: Southern Oklahoma Copper Ornament, 402.
Cranial Deformation, Artificial, 306.
Culture: A Chronological Outline for the Northwest Florida Coast, 232; Direct-Historical Approach in California Archaeology, 98; Early Horizons in the Southeast, 209; Independent Development of the Mogollon Culture, 5; Observations Concerning the "Red Paint Culture," 156; Oneota Site in Missouri, 290; Natchezan Culture Type, 255; Taxonomic Position of Stallings Island, Georgia, 223.

DELLINGER, S. C. and S. D. DICKINSON, Pottery from the Ozark Bluff Shelters, 276.
DICKINSON, S. D. AND S. C. DELLINGER, Pottery from the Ozark Bluff Shelters, 276.
Direct Historical Approach: In California Archaeology, 98; To Archaeology, 337; Natchezan Culture Types, 255.
DOUGLAS, F. H., review, Portfolio of Prehistoric Hohokam Pottery Designs, 418.

Early Horizons in the Southeast, 209.
Early Man in America: Early Horizons in the Southeast, 209; Folsom and Yuma Points from the Estancia Valley, New Mexico, 400; Preliminary Report on a Buried Yuma Site in Wyoming, 70.
EISELEY, LOREN C., reviews, Early Man in America: Index to Localities and

Selected Bibliography, 84; Evidences of Early Occupation in Sandia Cave, 415.
ELLIS, H. HOLMES, review, Classification and Description of Indian Stone Artifacts, 422.
Excavations in the Calapuya Mounds of the Willamette Valley, Oregon, 147.
Extinct Fauna and Man, 69.

Fabric Impressions of Pottery from the Elizabeth Herrell Site, Missouri, 166.
FAIRBANKS, CHARLES H., The Taxonomic Position of Stalling's Island, Georgia, 223.
FARMER, MALCOLM F., Terra Incognita? 397.
FENENGA, FRANKLIN and ROBERT F. HEIZER, The Origin and Authenticity of an Atlatl and an Atlatl Dart from Lassen County, California, 134.
FEWKES, VLADIMIR J., The Function of Paddle and Anvil in Pottery Making, 162; A Preliminary Report on Pottery Making at Gay Head, Martha's Vineyard, Massachusetts, 67.
Florida: A Chronological Outline for the Northwest Florida Coast, 232.
Fluted Points from Wisconsin, 400.
Function of Paddle and Anvil in Pottery Making, 162.

GEBHARD, PAUL and KATE PECK KENT, Some Textile Specimens from the Aleutian Islands, 171.
Geographical Differentiation of New Jersey Archaeological Material Inferred from Private Collections, 369.
Georgia: Taxonomic Position of Stalling's Island, Georgia, 223.
GIDDINGS, J. L., JR., Rock Paintings in Central Alaska, 69.
GRIFFIN, JAMES B., Adena Pottery, 344; reviews, The Black Pottery of Coyotepec, Oaxaca, Mexico, 193; Archaeological Perspectives in the Northern Mississippi Valley, 329; From History to Prehistory in the Northern Great Plains, 332; The Historic Method as Applied to Southeastern Archaeology, 328; Virginia before Jamestown, 328.
Guatemala: Inscription on Stela 38, Piedras Negras, El Petén, 364; A Southern Maya-Peten Pottery Correlation, 389.

HAAG, WILLIAM G., Early Horizons in the Southeast, 209.
HADLOCK, WENDELL S., Observations Concerning the "Red Paint Culture," 156.
HAYDEN, JULIAN D., Plaster Mixing Bowls, 405.
HEIZER, ROBERT F., The Direct-Historical Approach in California Archaeology, 98.
HEIZER, ROBERT F. and FRANKLIN FENENGA, The Origin and Authenticity of an Atlatl and an Atlatl Dart from Lassen County, California, 134.
HEWES, GORDON W., Reconnaissance of the Central San Joaquin Valley, 123.
HIBBEN, FRANK C., reviews, Developments in the Problem of the North American Paleo-Indian, 327; Native Cultures of the Intermontane (Great Basin) Area, 335; Progress in the Southwest, 334; Some Navaho Culture Changes during Two Centuries, 333.
Hieroglyphs: The Inscription on Stela 38, Piedras Negras, El Petén, Guatemala, 364.
HOEBEL, E. ADAMSON, review, The Ethnography of Salt in Aboriginal North America. Culture Element Distributions: XV, Salt, Dogs, Tobacco, 200.
Honduras: A Delimitation of the Area and Some of the Archaeology of the Sula-Jicaque Indians of Honduras, 376; A A Sula-Ulúa Pottery Kiln, 39.
HOWARD, EDGAR B., LINTON SATTERTHWAITE, JR. and CHARLES BACHE, Preliminary Report on a Buried Yuma Site in Wyoming, 70.
HOWELLS, W. W., review, Anthropometric Observations on the Eskimos and Indians of Labrador, 90.
HURT, WESLEY R., JR., Folsom and Yuma Points from the Estancia Valley, New Mexico, 400.

Illinois: news of, 76, 77, 181, 411, 412; "Salt Pans" at the Kincaid Site, 165.
Indian Village Sites Adjacent to Manchester, New Hampshire, 359.
Indiana: news of, 181.
Inscription on Stela, 38, Piedras Negras, El Petén, Guatemala, 364.
IVES, RONALD L., The Origin of the Sonoyta Townsite, Sonora, Mexico, 20.

JENNESS, DIAMOND, William John Wintemberg, 64.
JOHNSON, ERNEST N., Stone Mortars of Contra Costa County, California, 322.
JOHNSON, FREDERICK, review, The Taft's Point Shell Mound at West Gouldsboro, Maine, 87.

KELLEY, J. CHARLES and T. N. CAMPBELL, What Are the Burnt Rock Mounds of Texas? 319.
KENT, KATE PECK and PAUL GEBHARD, Some Textile Specimens from the Aleutian Islands, 171.
Kincaid, "Salt Pans," 165.
KINIETZ, VERNON, review, Problems Arising from the Historic Northeastern Position of the Iroquois, 329.
KNOWLES, NATHANIEL, Geographical Differentiation of New Jersey Archaeological Material Inferred from Private Collections, 369.
KROEBER, A. L., On "An Interpretation of

the Prehistory of the Eastern United States," 326; Tapajó Pottery, 403.

LAUGHLIN, WILLIAM S., Excavations in the Calapuya Mounds of the Willamette Valley, Oregon, 147.
LINTON, RALPH, review, Ethnographic Bibliography of North America, 422.
LONGYEAR, JOHN M. III, A Southern Maya-Peten Pottery Correlation, 389.
LOWIE, ROBERT H., review, Pioneers in American Anthropology: The Bandelier-Morgan Letters, 1873–1883, 196.

MCGREGOR, J. C., reviews, Distribution and Significance of Ball Courts in the Southwest, 419; Prehistory of El Rito de los Frijoles, Bandelier National Monument, 195.
Maine: Observations Concerning the "Red Paint Culture," 156.
Marksville: Chronological Outlines for the Northwest Florida Coast, 232; Pottery from the Ozark Bluff Shelters, 276.
MARSHALL, HARLAN A., Some Ancient Indian Village Sites Adjacent to Manchester, New Hampshire, 359.
Massachusetts: A Further Note on the Squibnocket Cliff Shell Heap, 68; news of, 75; A Preliminary Report on Pottery Making at Gay Head, Martha's Vineyard, Massachusetts, 67.
Maya: The Ceremonial Bar and Associated Features of Maya Ornamental Art, 48; A Southern Maya-Peten Pottery Correlation, 389.
Mexico: news of, 81, 187, 412; The Origin of the Sonoyta Townsite, Sonora, Mexico, 20.
Michigan: news of, 181, 412.
Middle America: news of, 80, 185, 412.
Minnesota: news of, 78, 180.
Missouri: Fabric Impressions of Pottery from the Elizabeth Herrell Site, 166; news of, 77, 411; Oneota Site, 290.
Mogollon Culture, Conjectures on the Independent Development, 5.
Mortars, Stone, of Contra Costa County, California, 322.
MUNGER, PAUL and ROBERT MCCORMICK ADAMS, Fabric Impressions of Pottery from the Elizabeth Herrell Site, Missouri, 166.

Natchezan Culture Type, 255.
NESBITT, PAUL H., review, The SU Site-Excavations at a Mogollon Village, Western New Mexico, 1939, 192.
NEUMANN, GEORG, reviews, Relationships of an Early Indian Cranial Series from Louisiana, 421; Some Historical Implications of Physical Anthropology, 327; Types of Artificial Cranial Deformation in the Eastern United States, 306.
Nevada: news of, 184.
New Hampshire: Some Ancient Indian Village Sites Adjacent to Manchester, New Hampshire, 359.
New Jersey: Geographical Differentiation of New Jersey Archaeological Material Inferred from Private Collections, 369.
New Mexico: Folsom and Yuma Points from the Estancia Valley, New Mexico, 400; news of, 78, 182.
Northeastern Area: news of, 75.
Northern Mississippi Area: news of, 76, 179, 411.

Obituary: William John Wintemberg, 64.
Ohio: Adena Pottery, 344; news of, 77, 180.
Oklahoma: A Southern Oklahoma Copper Ornament, 402.
Oneota: An Oneota Site in Missouri, 290; Pottery from the Ozark Bluff Shelters, 276.
Oregon: Excavations in the Calapuya Mounds of the Willamette Valley, Oregon, 147; news of, 414.

Pacific Coast Area: news of, 79, 185, 413.
Panama: news of, 188.
Plaster Mixing Bowls, 405.
Pottery: Adena Pottery, 344; Black Mesa Black on White, 164; A Chronological Outline for the Northwest Florida Coast, 232; A Delimitation of the Area and Some of the Archaeology of the Sula-Jicaque Indians of Honduras, 376; Fabric Impressions of Pottery from the Elizabeth Herrell Site, Missouri, 166; The Function of Paddle and Anvil in Pottery Making, 162; Natchezan Culture Type, 255; Pottery from the Ozark Bluff Shelters, 276; A Preliminary Report on Pottery Making at Gay Head, Martha's Vineyard, Massachusetts, 67; "Salt Pans" at the Kincaid Site, 165; A Southern Maya-Peten Pottery Correlation, 389; A Sulu-Ulúa Pottery Kiln, 39; Tapajó Pottery, 403.

QUIMBY, GEORGE I., JR., The Natchezan Culture Type, 255; review, Bulletin of the Texas Archaeological and Paleontological Society, Vol. 12, 194.

RAINEY, FROELICH G., review, Outline of Eskimo Prehistory, 336.
Reconnaissance of the Central San Joaquin Valley, 123.
"Red Paint Culture," 156.
Reviews: Analysis of Coastal Algonquian Culture, 86; Anasazi Painted Pottery in Field Museum, 197; Anthropometric Observations on the Eskimos and Indians of Labrador, 90; Archaeological Studies in the La Plata District, Southwestern Colorado and Northwestern New Mexico, 198; Black Pottery of Coyotepec, Oaxaca, Mexico, 193; Bulletin of the Texas Archeological and Paleontological Society, Vol. 12, 194;

Classification and Description of Indian Stone Artifacts, 422; Cultural and Natural Areas of Native North America, 417; Distribution and Significance of Ball Courts in the Southwest, 419; Early Man in America, 84; Essays in Historical Anthropology, 327; Ethnographic Bibliography of North America, 422; Ethnography of Salt in Aboriginal North America . . . and Salt, Dogs, Tobacco, 200; Evidences of Early Occupation in Sandia Cave, 415; Herbarium from the Allegany Senecas, 194; Indians of the Americas, 189; Indians of the Western Great Lakes, 420; Maya and Their Neighbors, 197; Outline of Eskimo Prehistory, 336; Pioneers in American Anthropology . . . 196; Portfolio of Prehistoric Hohokam Pottery Designs, 418; Prehistoric Antiquities of Indiana, 191; Prehistory of El Rito de los Frijoles, Bandelier National Monument, 195; Relationships of an Early Indian Cranial Series from Louisiana, 421; Report of the Durango, Colorado Public Library Museum Project of the National Youth Administration, 1936–1940, 85; SU Site—Excavations at a Mogollon Village . . . 192; Taft's Point Shell Mound at West Gouldsboro, Maine, 87; Viking and the Red Man . . . 89.

RINALDO, JOHN, Conjectures on the Independent Development of the Mogollon Culture, 5.

RITCHIE, WM. A., review, Prehistoric Antiquities of Indiana, 191.

RITZENHALER, ROBERT E., review, The Indians of the Western Great Lakes, 1615–1760, 420.

Rock Paintings in Central Alaska, 70.

"Salt Pans" at the Kincaid Site, 165.

Sandia Cave, 408.

SATTERTHWAITE, LINTON, EDGAR B. HOWARD and CHARLES BACHE, Preliminary Report on a Buried Yuma Site in Wyoming, 70.

Scalping, Additional Evidence, 398.

SCHULTES, RICHARD EVANS, review, An Herbarium from the Allegany Senecas, 194.

SELLARDS, E. H., Stone Images from Henderson County, Texas, 29.

SHERMAN, THEODORE H., A Cave Habitation in Vermont, 176.

SIEBERT, FRANK T., JR., review, The Viking and the Red Man, the Old Norse Origin of the Algonquin Language, 89.

Skeletal Material: Additional Evidence of Scalping, 398; Artificial Cranial Deformation in the Eastern United States, 306.

SMITH, MARIAN W., A Note on Extinct Fauna and Man, 69.

SNOW, CHARLES E., Additional Evidence of Scalping, 398.

Society for American Archaeology: Annual meeting, 202.

Sonoyta Townsite, Sonora, Mexico, 20.

South America: news of, 82.

Southeastern Area: Artificial Cranial Deformation in the Eastern United States, 306; A Chronological Outline for the Northwest Florida Coast, 232; Early Horizons in the Southeast, 209; The Natchezan Culture Type, 255; news of, 76, 179, 182; Pottery from the Ozark Bluff Shelters, 276; Taxonomic Position of Stalling's Island, Georgia, 223.

A Southern Maya-Peten Pottery Correlation, 389.

Southwestern Area: Conjectures on the Independent Development of the Mogollon Culture, 5; news of, 78, 182.

STEWARD, JULIAN H., The Direct Historical Approach to Archaeology, 337.

STONE, DORIS, A Delimitation of the Area and Some of the Archaeology of the Sula-Jicaque Indians of Honduras, 376.

STONE, DORIS and CONCHITA TURNBULL, A Sula-Ulúa Pottery Kiln, 39.

Stone Images from Henderson County, Texas, 29.

Stone Mortars of Contra Costa County, California, 322.

Sula-Jicaque Indians of Honduras, 376.

A Sula-Ulúa Pottery Kiln, 39.

Tapajo Pottery, 403.

The Taxonomic Position of Stalling's Island, Georgia, 223.

TAYLOR, WALTER W., The Ceremonial Bar and Associated Features of Maya Ornamental Art, 48.

Terra Incognita? 397.

Texas: Stone Images from Henderson County, Texas, 29; What Are the Burnt Rock Mounds of Texas? 319.

Textile Specimens from the Aleutian Islands, 171.

TURNBULL, CONCHITA and DORIS STONE, A Sula-Ulúa Pottery Kiln, 39.

Utah: news of, 184, 185.

Vermont: A Cave Habitation in Vermont, 176.

VOEGELIN, CARL, review, Southern Peripheral Athapaskan Origins, Divisions, and Migrations, 336.

VOEGELIN, ERMINIE W., review, An Analysis of Coastal Algonquian Culture, 86.

WILLEY, GORDON and R. B. WOODBURY, A Chronological Outline for the Northwest Florida Coast, 232.

WINTEMBERG, WILLIAM JOHN, obituary, 64.

Wisconsin: Fluted Points, 400.

WOODBURY, R. B. and GORDON R. WILLEY, A Chronological Outline for the Northwest Florida Coast, 232.

FACTS AND COMMENTS

Terra Incognita? MALCOLM F. FARMER 397
Additional Evidence of Scalping. CHARLES E. SNOW 398
Fluted Points from Wisconsin. DOUGLAS S. BYERS 400
Folsom and Yuma Points from the Estancia Valley, New Mexico. WESLEY R. HURT, JR. 400
A Southern Oklahoma Copper Ornament. H. R. ANTLE 402
Tapajó Pottery. A. L. KROEBER 403
Plaster Mixing Bowls. JULIAN D. HAYDEN 405
Concerning Sandia Cave. DOUGLAS S. BYERS 408

BOOK REVIEWS

HIBBEN: *Evidences of Early Occupation in Sandia Cave* (Eiseley) 415
KROEBER: *Cultural and Natural Areas of Native North America* (Cooper) . . . 417
HALSETH: *Portfolio of Prehistoric Hohokam Pottery Designs* (Douglas) 418
CHARD: *Distribution and Significance of Ball Courts in the Southwest* (McGregor) . 419
KINIETZ: *The Indians of the Western Great Lakes, 1615–1760* (Ritzenthaler) . . 420
COLLINS: *Relationships of an Early Indian Cranial Series from Louisiana* (Neumann) 421
MURDOCK: *Ethnographic Bibliography of North America* (Linton) 422
RENAUD: *Classification and Description of Indian Stone Artifacts* (Ellis) . . . 422

INFORMATION FOR AUTHORS

AMERICAN ANTIQUITY is concerned primarily with archaeological matter, but articles dealing with related fields may be accepted providing that their connection with the archaeological field is clear. Manuscripts must be typewritten on standard 8½×11 paper, on one side only, double spaced. Articles should not exceed a length of 7500 words without subsidy by the author.

Bibliographies must follow a standard form; citations from journals should be given as follows:

JENKS, ALBERT E. AND LLOYD A. WILFORD.
1938. "The Sauk Valley Skeleton." *Bulletin of the Texas Archeological and Paleontological Society*, Vol. 10;

citations of separate books or reports:

JENKS, ALBERT E.
1936. *Pleistocene Man in Minnesota.* University of Minnesota Press.

Illustrations over and above one page of half tones or the equivalent in line cuts must be paid for by the author. Photographs for reproduction should be on glossy paper, unmounted, and of a size suitable for reduction to 4½×7 inches, or a portion thereof, making due allowance for captions. Line drawings should be in India ink on a smooth, hard-surfaced paper, with figure numbers written lightly in pencil on the margin or back.

Reprints (without covers) will be supplied at the following prices:

COPIES	1–4 pp.	5–8 pp.	9–12 pp.	13–16 pp.	17–20 pp.	21–24 pp.	25–28 pp.	29–32 pp.
25 copies	$2.00	$3.65	$ 5.65	$ 5.75	$ 7.65	$ 8.65	$ 9.90	$10.50
50 "	2.50	4.00	6.25	6.50	8.50	9.75	11.25	12.00
75 "	2.75	4.40	6.90	7.25	9.40	10.90	12.65	13.50
125 "	3.25	5.15	8.15	8.75	11.15	13.15	15.40	16.50
175 "	3.75	5.90	9.40	10.25	12.90	15.40	18.15	19.50
275 "	4.75	7.40	11.90	13.25	16.40	19.90	23.65	25.50

Covers with title and date of issue of AMERICAN ANTIQUITY will be furnished at the following rates: 25 for $2.25; additional covers 1½ cents each. Plates will be furnished at 100 for $1.00.

Cost of transportation of the reprints (postage or express) will be charged to the author.